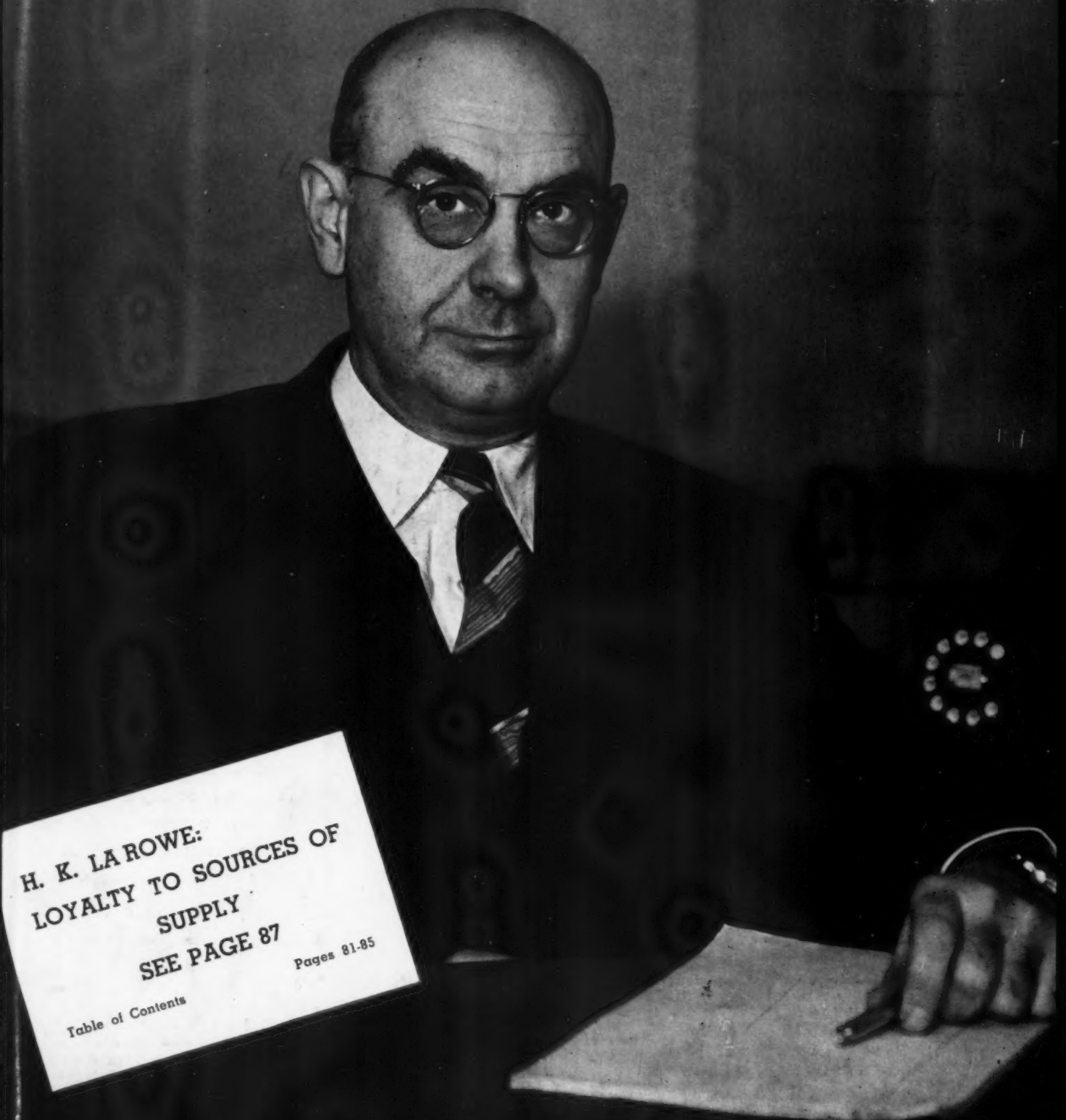


PURCHASING

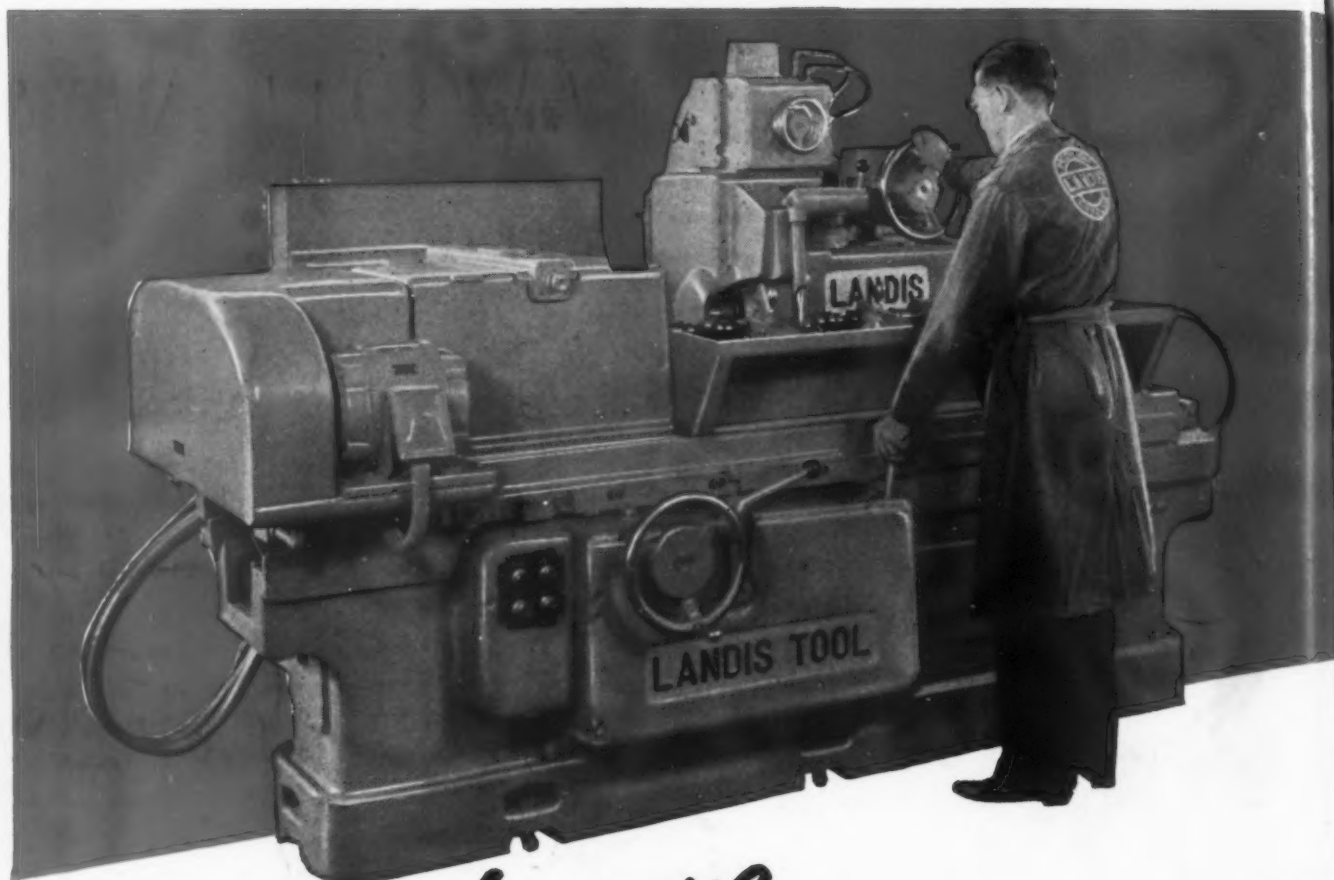
JUNE, 1947



H. K. LAROWE:
LOYALTY TO SOURCES OF
SUPPLY
SEE PAGE 87

Table of Contents

Pages 81-85



Grind more pieces PER WHEEL DRESSING

AN EFFECTIVE grinding coolant must 1) settle grinding dirt quickly, and 2) prevent rust. Emulsions prepared with *Texaco Soluble Oil D* (or, where water is particularly hard, with *Texaco Soluble Oil HW*) have these two essential characteristics.

Quick settling of grinding dirt from *Texaco Soluble Oil D* emulsions prevents wheel loading and means increased production and lower operating costs. You can grind faster and smoother, get more pieces between wheel dressings and wheels last longer.

Emulsions with *Texaco Soluble Oil D* cool the work quickly, preventing distortion from frictional heat, and they leave the finely finished surface filmed with oil, thus effectively preventing rust.

You'll do more and better work with the help of Texaco Products and Lubrication Engineering Service. Call the nearest of the more than 2500 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, New York.

PREVENT SLUDGE AND RUST IN HYDRAULIC SYSTEMS

Users everywhere report smoother, more dependable hydraulic operation with *Texaco Regal Oils (R & O)*. These turbine-grade oils are specially processed to prevent foaming and contain inhibitors to prevent the rust and sludge formations that cause costly hydraulic stoppages.

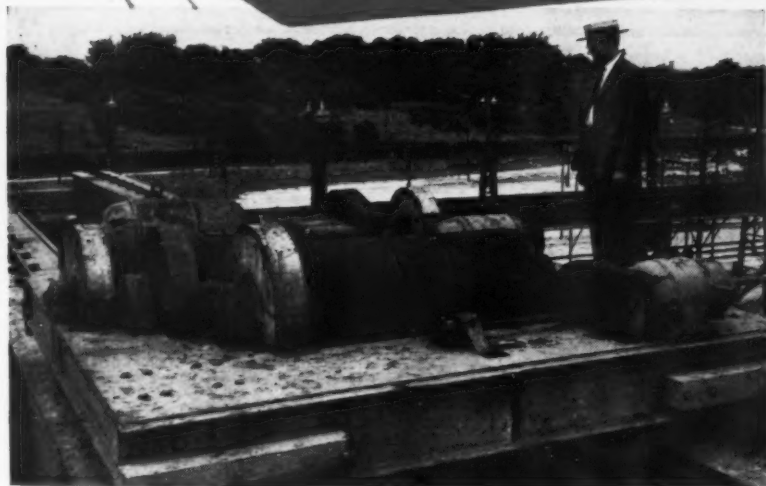


TEXACO CUTTING, SOLUBLE AND GRINDING OILS FOR FASTER MACHINING

Tune in... TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.

CENTURY Slip Ring Motors

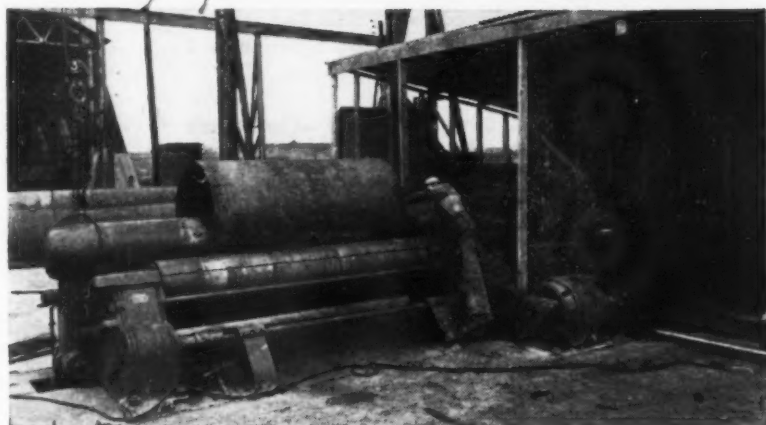
Provide Maximum Flexibility — For
Speed Regulation . . . Torque Control . . .
Reversing Direction of Rotation



The two installations shown here demonstrate how Century Slip Ring Motors provide the flexibility needed to meet varying load conditions.

Illustration No. 1 shows 4 Century Totally Enclosed Slip Ring Motors on an outdoor crane. One motor powers the crane travel, one the carriage cross travel, one on small load hook and one on large load hook.

Century Slip Ring Motors provide variable speeds for the travel and hoist motions of the crane. Reversing direction of rotation permits crane travel in either direction.



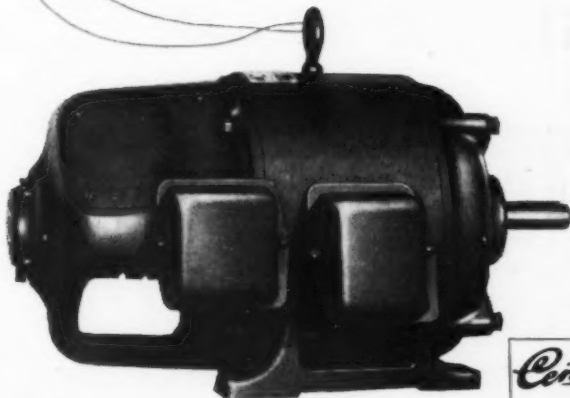
In Illustration No. 2 the bending roll is driven by 2 Century Slip Ring Motors—75 horsepower and 30 horsepower. One operates the two power rolls and the other raises and lowers the third roll which regulates the amount of curvature of the steel plate.

Because plate thickness up to $1\frac{7}{8}$ " are handled, this machine requires a great variety of speeds and torque. Low starting current is another requirement which is easily met by Century Slip Ring Motors.

When your requirements demand that electric motors have flexibility for speed variation, torque control, reversing of direction of rotation and high starting torque with low starting current, specify Century Slip Ring Motors.

Century builds a complete line of fractional and integral horsepower electric motors in the popular sizes to meet the requirements of industrial, commercial and appliance needs.

Specify Century for all your electric power needs.



CENTURY ELECTRIC COMPANY

1806 Pine St., St. Louis 3, Mo.

Offices and Stock Points in Principal Cities

Performance Facts

ABOUT CHALLENGER REPRENE TRANSMISSION BELTING



CURRENT EMPHASIS by industry on the need for new production efficiencies, to combat increased cost factors, has resulted in a sharply increased interest in Republic's popular, heavy-duty transmission belt, Challenger Reprene. The following information on Challenger covers the performance features most frequently asked about:

Your nearby Republic Distributor will make prompt delivery on Challenger and other Republic Rubber products.



**MORE
SERVICE FROM
RUBBER FOR
INDUSTRY**

- 1** **STRENGTH FOR HEAVY, SUSTAINED OR SHOCK LOADS**—Challenger is built in number of plies and weight of fabric according to known load requirements. Exceptional surplus strength is assured by test loads, approximately ten times those of the intended installation, that must be passed before the belts leave the factory.
- 2** **FLEXIBILITY FOR HIGH SPEEDS AND SMALL PULLEYS**—Challenger has a specially developed rubber skim coat between plies that provides unusual flexibility, ply adhesion, and ability to minimize belt-destroying heat build-up.
- 3** **STRETCHFREE FOR ALL-AROUND EFFICIENCY**—Challenger's flexibility is achieved without sacrifice of the lateral strength required to resist stretch, avoid downtime for shortening and re-fastening.
- 4** **FRICTION SURFACES FOR MAXIMUM PULLEY TRACTION**—Both of Challenger's outer plies have adhesive friction surfaces, which afford an important degree of extra traction, permit operation from either side with low slack-side tension.
- 5** **RESISTANCE TO EXTRANEEOUS CONDITIONS**—Challenger is impregnated with an especially compounded, oil-resisting rubber and is specifically recommended for installations where excessive oil and grease are present; the belt also is effectively sealed against damaging moisture, fumes, etc.

REPUBLIC RUBBER

DIVISION

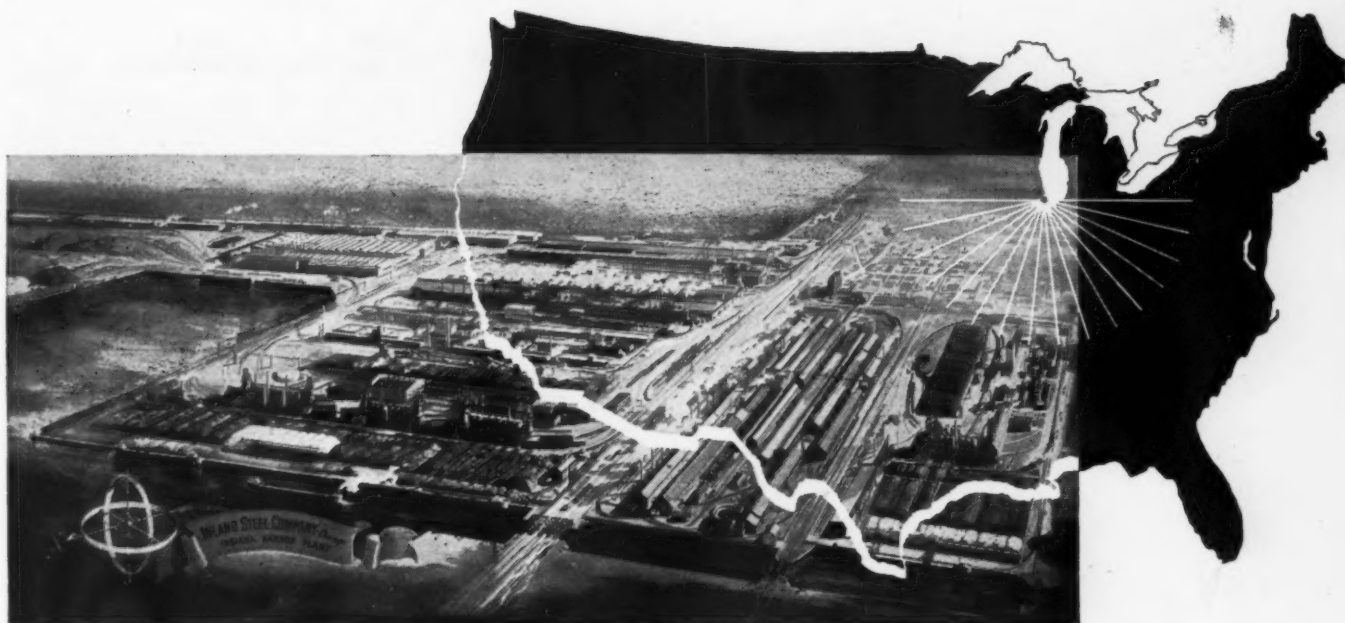
LEE RUBBER & TIRE CORPORATION

YOUNGSTOWN 1, OHIO

REPUBLIC INDUSTRIAL PRODUCTS
YOUNGSTOWN, O.



LEE DELUXE TIRES AND TUBES
CONSHOHOCKEN, PA.



At the Hub of American Industry ...*Inland Steel*

Strategically located at the nerve center of America's transportation network, Inland Steel is linked with all of the major industrial centers by railroad mainlines and economical waterways.

Moreover, in addition to being centrally located, Inland is a completely integrated organization—offices and plants located together to assure the greatest possible dispatch in translating orders and information into action for the customer.

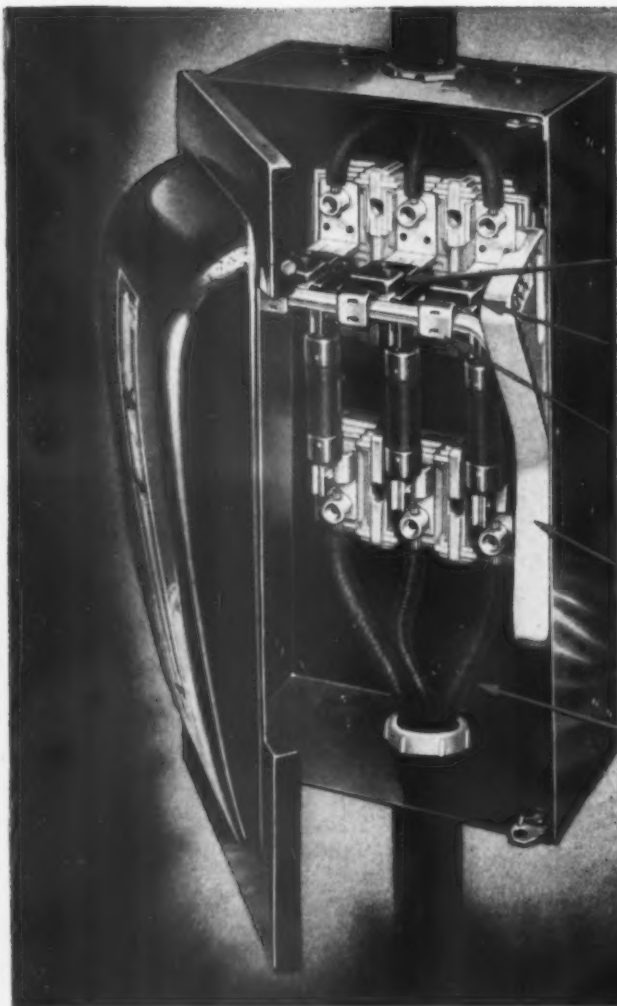
Throughout its entire history and growth, Inland has been guided by a desire to render better service to American Industry. This desire is mirrored in Inland's modern research laboratories, in Inland's reputation for close customer cooperation and in the quality of Inland products.

Although the demand for Inland steel is still greater than the supply, facilities are being expanded and production is being pushed to the limit so that you will be able to get all of the steel you need as soon as possible.

**INLAND
STEEL**

INLAND STEEL CO., 38 S. Dearborn St., Chicago 3, Ill.
Sales Offices: Detroit • Indianapolis • Kansas City
Milwaukee • New York • St. Louis • St. Paul

OTHER PRODUCTS: BARS, STRUCTURALS, PLATES,
SHEETS, STRIP, TIN PLATE, FLOOR PLATE,
REINFORCING BARS, RAILS, TRACK ACCESSORIES



**ENGINEERS SHOULD CHECK
THESE FEATURES:**

- 1** Arcs are snuffed quickly by Bull-Dog's Vacu-Break Arcing Chamber to insure safety and prevent pitting and burning of contacts.
- 2** Fuse failures and damaging high temperatures are reduced by bolt-tight "Clampmatic Contacts" to add years to the life of the switch.
- 3** Fewer moving parts means less trouble—less maintenance.
No more broken switch handles. Husky rocker-type handles operate with ease and stand abuse.
- 4** Front operation permits "ganging" switches without waste space.
- 5** Skinned knuckles and distortion of cables are eliminated, because ample wiring space is provided for easy installation.

Better switch to a Better Switch!

ONCE a safety switch is installed, most everybody takes it for granted, at least until it starts to give trouble.

But you never have to give BullDog Vacu-Break Safety Switches more than a passing glance. These modern switches are designed and built to give long, trouble-free service under heavy use with the *absolute minimum of maintenance.*

No costly shutdowns on your production line . . . no delays for expensive switch repairs. Those are the reasons why thousands of plant executives and their

engineers have agreed on BullDog Vacu-Break Switches.

You'll do well to follow their lead by *switching to a better switch.* There's a BullDog Field Engineer close by to show you BullDog installations near your own plant and give you full technical details. Or you can write BullDog direct for descriptive folders. Do it today!

BullDog manufactures Vacu-Break Safety Switches—SoftFuse Panelboards—Superba and Rocker Type Lighting Panels—Switchboards—Circuit Master Breakers—"Lo-X" Feeder BUStriction DUCT—"Plug-in" Type BUStriction DUCT—Universal Trol-E-Duct for flexible lighting—Industrial Trol-E-Duct for portable tools, cranes, hoists.



BULLDOG
ELECTRIC PRODUCTS COMPANY





*Laundering
tire moulds
with brushes*

**saves money
...improves
product**

EVERY tire mold, regardless of size, must be thoroughly cleaned after each vulcanizing operation. Typical of the many modern production practices pioneered by The Firestone Tire & Rubber Company is the cleaning of watch-case tire molds with Osborn wire brushing wheels. Any other method would call for removing the molds from the press and installing replacements to insure continuous production. This additional handling plus inventory of substitute molds would all add up to a costly operation.

With the use of Osborn wire brushing wheels, all tire molds at Firestone are cleaned thoroughly right on the press in a matter of minutes. Valuable time is saved, need for additional molds is eliminated and the brushing technique conditions the metal surface for longer mold life. The end product benefits, too, as tires produced from molds that are power brush cleaned have a smoother, glossier surface.



This is a typical example of how Osborn brushes are used on many major production operations as a means of saving time, cutting costs and improving product. How can you be sure of obtaining these same brushing benefits? Avail yourself of the services of an Osborn sales engineer. He has the experience and the complete line of product to solve your problem.



THE OSBORN MANUFACTURING COMPANY

5401 Hamilton Avenue

Cleveland, Ohio

WORLD'S LARGEST MANUFACTURER OF BRUSHES FOR INDUSTRY



"SILVER STREAK BELTS

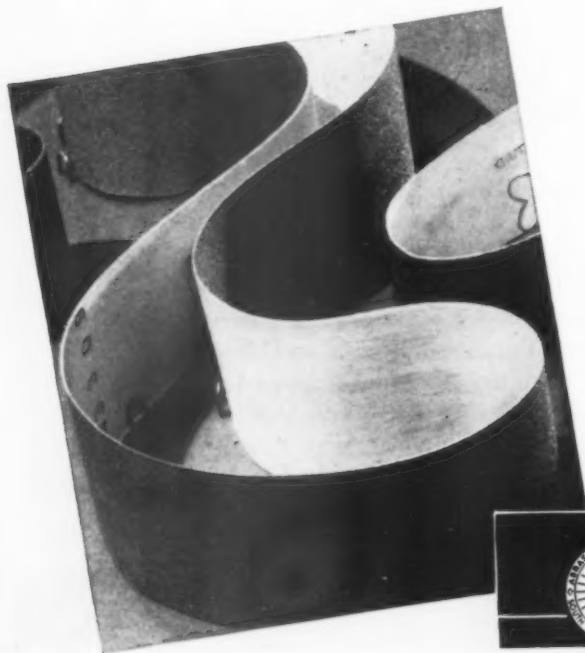
Sure, got that size in stock"

PHONE YOUR JOBBER TODAY, and ask for Silver Streak Belts, the *insulated* abrasive for high speed finish grinding. You'll be surprised how fast you get delivery. It's prompt shipment on all sizes, from stock on many.

And this also applies to Jewelox Aluminum Oxide Belts, for grinding and polishing hard metals. Jewelox is the hardest, toughest abrasive in commercial use—eminently adapted for use under the most severe conditions.

Both Silver Streak and Jewelox Belts have the exclusive Velvet Joint, one of the greatest improvements in abrasive belt making. Velvet Joint Belts lie smooth, do not jump or hump, last longer.

Order a supply now from your jobber. Remember, there's a standard or special type and grade of Jewel Abrasive Belt for every requirement. If your jobber hasn't heard this prompt-shipment news yet, write to Abrasive Products, Inc., 523 Pearl Street, South Braintree, Mass.



• **JEWELOX**, the hardest, toughest abrasive in commercial use. Lasts longer on the hardest metals.

• **SILVER STREAK**, the heat-resistant abrasive that lets you speed up production safely.



Abrasive Products, Inc.
SOUTH BRAINTREE 85, MASSACHUSETTS - MAKERS OF JEWEL COATED ABRASIVES

New!

ROE-FLAT WIRE SCREEN

—up to 90% more wear
than ordinary crimp types

It's here at last—a new, better way to combine the tonnage output you get from maximum open area with the long-life economy of heavier wire diameters.

In *Roe-Flat*, Roebling introduces a crimping method that provides an *absolutely flat* wearing surface. Without reducing open area, without sacrificing volume of production, *Roe-Flat* gives you up to 90% longer wire screen life!

Here's why:

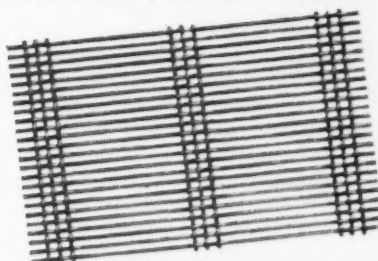
1. *Roe-Flat* has over 75% more metallic wearing surface than ordinary crimps—because wear is spread evenly over practically all the surface of the wires, not concentrated on the raised intersections.
2. With parallel wires on the same plane, there's less blinding because of *Roe-Flat's* unique construction.
3. Accurate size of openings assures uniform product, helps increase screening production.
4. Improved quality steel is used, to increase *Roe-Flat's* resistance to abrasion, wear and fatigue.

The advantages of *Roe-Flat* crimp can be incorporated in wire screening of practically every design. Get the full story. Write today for the facts.

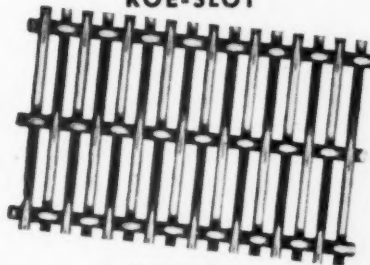
JOHN A. ROEBLING'S SONS COMPANY

Woven Wire Fabrics Division
TRENTON 2, NEW JERSEY

TWO OTHER WAYS TO CUT SCREEN COSTS



ROE-SLOT



ROE-TON

Manufacturers of Wire Rope and Strand • Fittings • Slings • Suspension Bridges and Cables • Aircord, Aircord Terminals and Air Controls • Aerial Wire Rope Systems • Electrical Wire and Cable • Ski Lifts • Hard, Annealed or Tempered High and Low Carbon Fine and Specialty Wire, Flat Wire, Cold Rolled Strip and Cold Rolled Spring Steel • Screen, Hardware and Industrial Wire Cloth • Lawn Mowers

ROEBLING —

A CENTURY OF CONFIDENCE



clip this coupon!

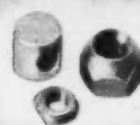
If you wish more information on any of the fasteners shown below, please send for a free copy of the new Lamson & Sessions brochure on **SPECIAL PURPOSE FASTENERS**. Better do it now. It may mean money in your pocket!

NAME _____ POSITION _____
 COMPANY _____ CITY _____ STATE _____
 ST. & NO. _____

THE LAMSON & SESSIONS COMPANY
 1971 WEST 85th STREET • CLEVELAND 2, OHIO



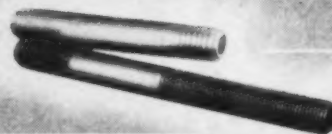
SEMS—Pre-assembled Screw and Lockwasher units



SPECIALTY NUTS, including cone, barrel, plier, oblong, Tri-Slot, half-round



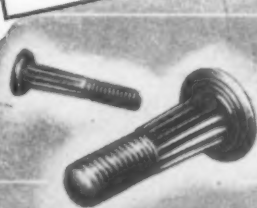
LAMSON LOCK NUTS—One-piece, all-steel—can be re-used repeatedly



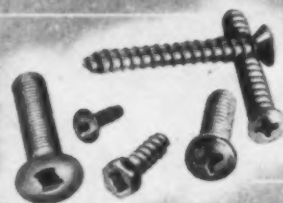
MILLED STUDS in a full range of sizes



DARDELET RIVET-BOLTS with the locking thread... time savers for steel construction



WEATHER-TIGHT Bolts—modern fasteners for wood assemblies—eliminate counterboring



PHILLIPS and CLUTCH RECESSED HEAD Machine Screws and Sheet Metal Screws



PLACE BOLTS—for locking assemblies rigidly



“1035” SET SCREWS of hi-tensile heat-treated steel, square head or headless



BENT Bolts, including U Bolts, L, Hook and Eye Bolts



WIRE ROPE CLIPS with the new Hi-Center Saddles and extra-strength U Bolts



PIPE PLUGS, square head and headless; forged steel, heat-treated



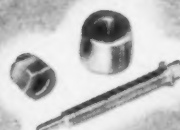
LOK-THRED Studs and Pipe Plugs—Thread locks and seals in standard tapped holes



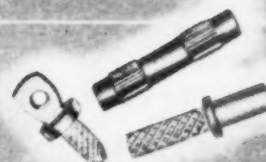
ROAD MACHINERY and other heavy equipment parts—high tensile and alloy fasteners



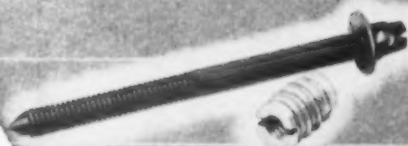
COTTER PINS of steel, brass, aluminum and stainless steel



BICYCLE PARTS, from axles and saddle bolts to chain-adjusting screws



PLASTIC INSERTS—made to your specifications... in production quantities



FURNITURE BOLTS, Skein Nuts, Cabinet Rod Bolts and Rod Screws



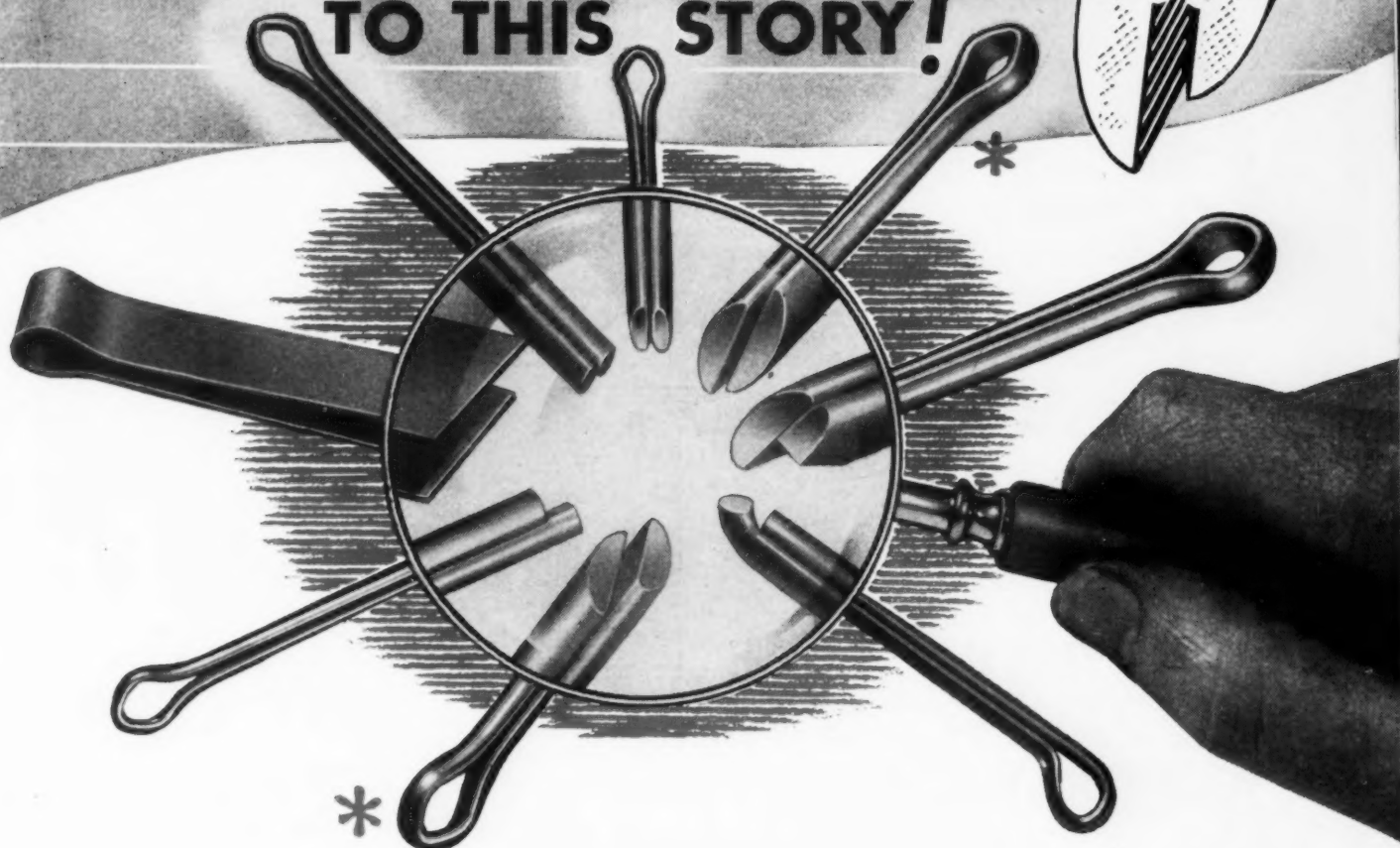
AIRCRAFT PRODUCTS: AN Bolts, Nuts, Screws, Studs, Cotters (including Stainless Cotters)

“BOLTS, NUTS & SCREWS”—a compilation of important technical articles on the manufacture, inspection, specification and use of fasteners; order from The Lamson & Sessions Co. at \$1.00 per copy.

“BOLT, NUT & RIVET STANDARDS”—a complete and up-to-date standards book on commercial fasteners. Available only from the American Institute of Bolt, Nut & Rivet Manufacturers, Hanna Bldg., Cleveland, Ohio. \$1.00 per copy.

GE BOLTS • MACHINE BOLTS • LAG SCREWS • WEATHER-TIGHT BOLTS • COTTER PINS • SEMS • KEY BOLTS • CHAIR and LADDER RODS
 • DARDELET RIVET BOLTS • CLIP BOLTS • PLOW BOLTS • TIRE BOLTS • SHEET METAL SCREWS • MACHINE SCREWS • STOVE BOLTS
 • PHILLIPS SCREWS • CAP SCREWS • SET SCREWS • PIPE PLUGS • HOT PRESSED and COLD PUNCHED NUTS • SKEIN NUTS • BATTERY BOLTS
 • CLUTCH HEAD SCREWS • TAIL NUTS • HEEL BOLTS • ACORN NUTS • CAPPED NUTS • SLEIGH SHOE BOLTS • STOVE RODS • CONNECTING-ROD BOLTS and NUTS • PLACE BOLTS • MARSDEN NUTS • SELF-TAPPING SCREWS • FITTING-UP BOLTS • U BOLTS • HOOK BOLTS

There's an Important POINT TO THIS STORY!



An important question to ask yourself in buying cotteners is this: are they engineered to give maximum speed and efficiency in assembly operations—to eliminate time-wasting, money-wasting and fumbling?

Illustrated above are the seven basic point designs of Lamson & Sessions cotter line. Each one has been developed and tested to perform a specific job faster and more efficiently than ordinary "run of the mill" cotteners.

The popular "Efficiency" point* design of Lamson cotteners gives them a "drift pin" action that helps align parts for easy insertion. And since one shank is longer than the other, it's an easy matter to spread them apart.

Lamson cotteners are available in sizes from $\frac{1}{32}$ " x $\frac{1}{4}$ " to $\frac{3}{4}$ " x 24" and may be obtained in production

quantities in a variety of metals and alloys—steel, brass, bronze, stainless steel and aluminum alloy.

Consider *your* use for cotteners and decide from the illustration which point best satisfies your requirements. Or better still, write us, giving details of your cotter applications and we'll gladly recommend the best point for your particular needs.

You can get quick delivery on most types of Lamson cotteners from your mill supplies distributor.

THE LAMSON & SESSIONS COMPANY

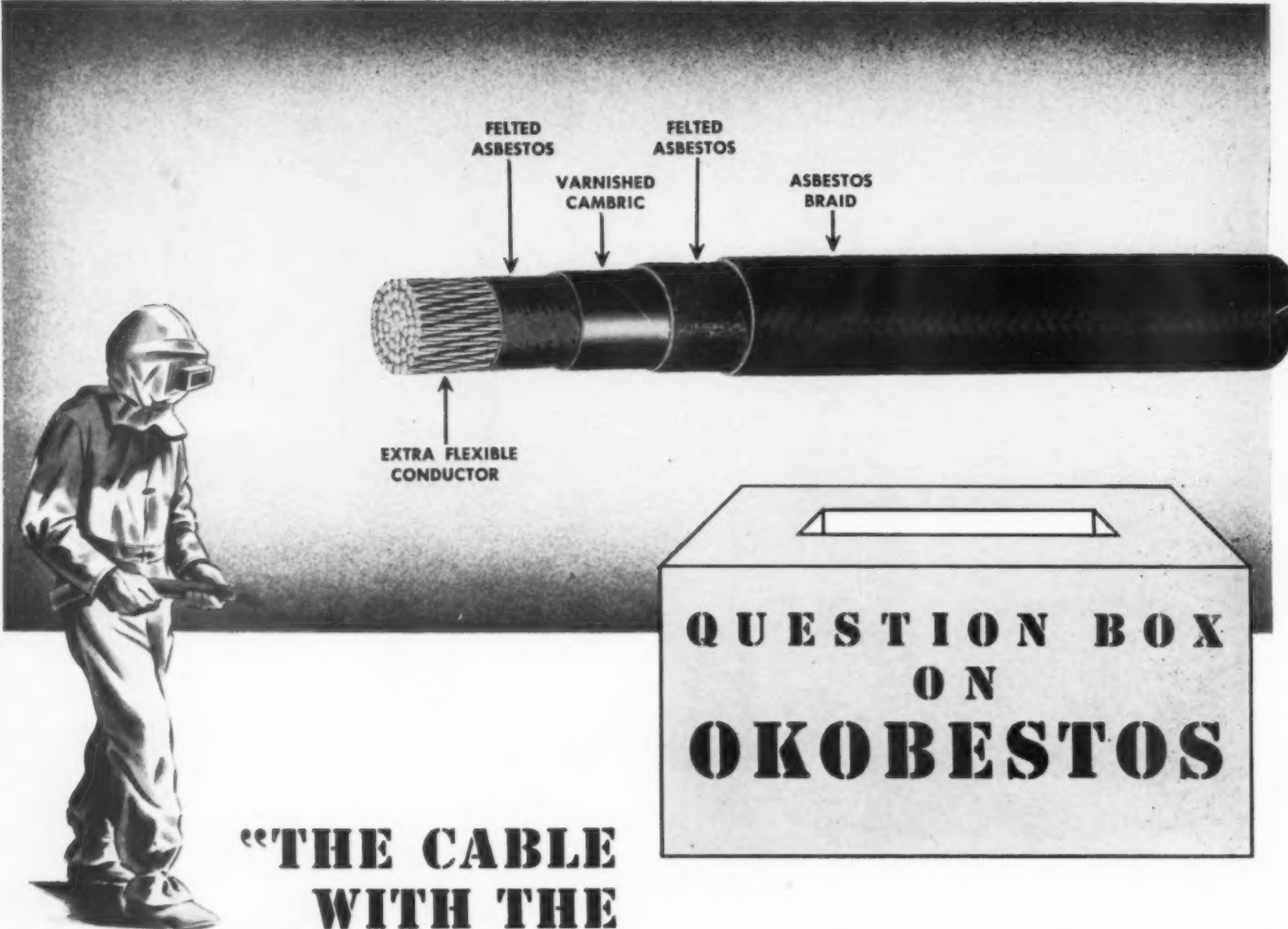
General Offices: 1971 West 85th Street, Cleveland 2, Ohio
Plants at Cleveland and Kent, Ohio • Birmingham • Chicago

SPECIAL PURPOSE

Lamson & Sessions
FASTENERS

RODS • NUTS • BOLTS • SEMI-FINISHED NUTS • LAMSON LOCK NUTS • ELEVATOR BOLTS • STOVE RODS • TRACTOR BOLTS and HUBS • SPRING CENTER BOLTS • HUB and WHEEL BOLTS • MACHINE SCREW • BARREL NUTS • OBLONG NUTS • CABINET BED BOLTS • AIR • PLASTIC INSERTS • EYE BOLTS • CLEVIS PINS • HINGE PINS • TINNERS

THUMB SCREWS • FIN HEAD BOLTS



The illustration shows a worker in a full-body asbestos suit on the left. To the right is a detailed cross-section of an Okobestos cable. Labels with arrows point to the following layers from the center outwards: **EXTRA FLEXIBLE CONDUCTOR**, **FELTED ASBESTOS**, **VARNISHED CAMBRIC**, **FELTED ASBESTOS**, and **ASBESTOS BRAID**. Below the cable is a box labeled **QUESTION BOX ON OKOBESTOS**.

"THE CABLE WITH THE ASBESTOS SUIT"

Q. What material, famous for fire-resistance, has established a record for permanence in electrical wires and cables for hot locations?

A. *Asbestos.*

Q. In what form is it most useful in this service?

A. *Impregnated felted asbestos insulation.*

Q. Is this type of insulation available in an Okonite cable?

A. *Yes. You'll find it in Okobestos, "the Cable with the Asbestos Suit."*

Q. Where is this cable particularly valuable to engineers in charge of electrical installations?

**HEADQUARTERS FOR
ANSWERS:**

OKONITE



A. In "hot spots" — in service where high temperatures are continuously encountered . . . near boilers, furnaces, soaking pits, annealing ovens for example.

Q. What is the construction of a typical Okobestos Cable?

A. (1) Conductors of Okoloy-coated copper covered with (2) a layer of felted asbestos impregnated with a heat- or moisture-resisting compound, over which is applied (3) varnished cambric in a succession of helical tape wrappings to form a layer of high dielectric strength insulation covered in turn by (4) another layer of felted asbestos insulation similar to the first and finally (5) a double asbestos braid, woven from heavy asbestos fibre threads, impregnated with a black moisture-resisting compound.

Q. Is Okobestos corrosion resistant?

A. *Yes — it's a good choice wherever corrosive fumes, chemicals, oils and solvents are found.*

Q. Are Okobestos cables mechanically strong?

A. *Yes. They have no organic outer coverings to rot or to mildew.*

Q. Where can I find out more about the different types of Okobestos cable that are available?

A. *In Bulletin OK-2061 which describes a number of different types, voltage ranges and applications. Write for a copy on your business letterhead addressed to The Okonite Company, Passaic, New Jersey.*

A BUYING GUIDE FOR ABRASIVES

POINT No. 5

PRODUCT APPLICATION

Supplying abrasives of highest quality is but one way in which The Carborundum Company serves industry. Considered equally important by many users is the attention directed to correct use of these products. For this purpose The Carborundum Company has established a special group of product application engineers.

This group studies, appraises and charts abrasive applications. New improved methods and better abrasive products are often turned up. CARBORUNDUM engineers are also called in to help in selecting the best abrasives to use for specific jobs and in specifying their application. The end result is better grinding, sanding and finishing at lower overall cost... another reason pointed to in preferring abrasives by CARBORUNDUM. The Carborundum Company, Niagara Falls, New York.

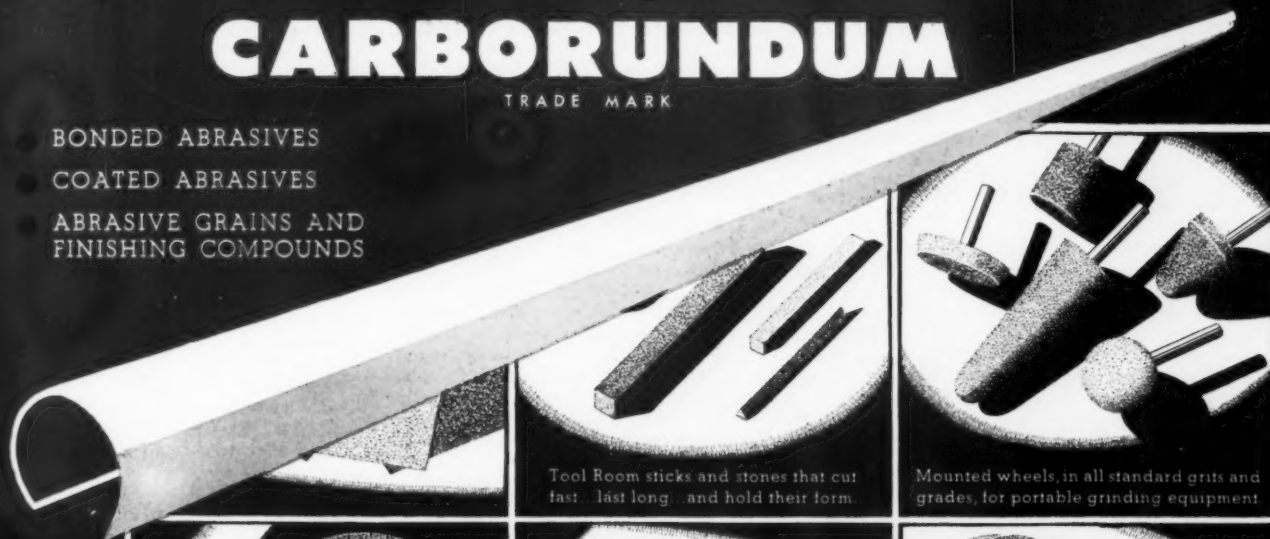


A Good Rule for Good Grinding... CALL IN

CARBORUNDUM

TRADE MARK

- BONDED ABRASIVES
- COATED ABRASIVES
- ABRASIVE GRAINS AND FINISHING COMPOUNDS

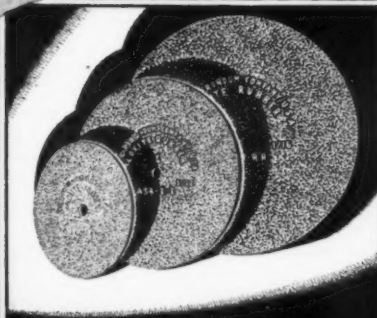


Tool Room sticks and stones that cut fast, last long, and hold their form.

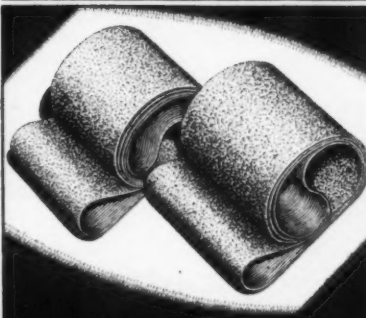
Mounted wheels, in all standard grits and grades, for portable grinding equipment.



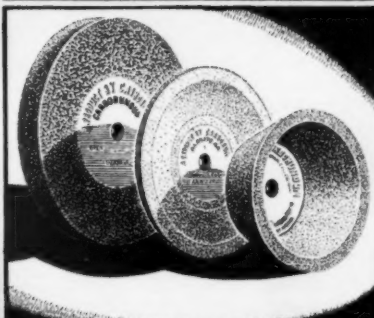
"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company.




Cutting-Off Wheels... the modern tool for faster, less costly, more finished cuts.



A Coated Abrasive for every sanding and finishing condition.



All standard shapes are supplied in grinding wheels by CARBORUNDUM.



ask "Purch"

TO GET YOU THIS **Free** INFORMATIVE LITERATURE

USE PREPAID POST CARD - PAGES 19 & 20

☐ **1. STEEL PLATE**—Eight-page bulletin describes special type of high manganese high sulphur analysis steel plate developed especially for applications involving machining such as production of rubber molds, machine parts, die bases, jig fixtures, etc., known as E-Z Cut Plates, featuring free machining and case hardening, has been issued by Joseph T. Ryerson & Son, Inc.

☐ **2. STEAM CONDENSATION**—New 12-page illustrated bulletin No. 35-80B, describes rotary condensation meters—capacities from 250 to 12,000 lbs. of condensate per hour. Meters are used by industrial plants, colleges, etc. to determine steam consumption per building or by departments. American District Steam Co.

☐ **3. LUBRICATION**—Booklet published by Alemite describes Alemite lubricants and their uses, and Electric-Operated Lubricant which is equipped for handling 5 types of greases and oils, with built-in high pressure electric power gun.

☐ **4. RECORDING, CONTROLLING Instruments**—Stock Instruments Bulletin W-18111 lists 150 different items available for immediate delivery—recording thermometers, pyrometers, pressure gauges, voltmeters, ammeters, and pH recorders. The Bristol Co.

☐ **5. WIRE CLOTH, METALLIC Screen**—Cambridge Wire Cloth and Metallic Screen are the subject of illustrated and detailed 76-page catalog issued by the Cambridge Wire Cloth Co.

☐ **6. FOUNDRY Mechanization**—Wide range of mechanized equipment for the modern foundry is described in 20-page illustrated Allis-Chalmers bulletin 07B6092A.

☐ **7. CAN LABELING**—"Successful Can Labeling", revised edition to include post-

war techniques and materials, covering operating practices for both spot and overlap labeling by hand and machine, has been issued by National Adhesives.

☐ **8. LIFT TRUCKS**—HydroLectric motorized lift trucks are described in bulletin issued by Lift Trucks, Inc. Truck capacity 4,000 lbs.; truck weight, 950 lbs. minus battery; batteries provide 8 to 12 hours service between charging.

☐ **9. BEARINGS**—New 168-page manual, No. 15—a combined engineering and application data reference volume for ball radial, ball reciprocating, radial roller, taper roller and thrust bearings, is announced by The Torrington Co., Bantam Bearings Divn. It completes series of 3 volumes published by Torrington, which is termed an authoritative guide in proper selection of suitable anti-friction bearings for all types of applications. The other two issues are Nos. 32 and Bulletin 200. If you need the 3 volumes, so indicate.

☐ **10. CARBON PAPER**—Bulletin describes Roll-O-Pak carbon paper for continuous open-web or fanfold forms. It consists of lightweight metal frame designed to carry core-less flat roll of carbon paper between each part of continuous form—one Roll-O-Pak frame being inserted between each part of form. Rolls are furnished in sets, and are available in variety of coatings and paper weights, designed to produce clear carbon copies on forms up to 16 or 17 parts. Blockout tissues can be furnished. Standard Manifold Co.

☐ **11. PAYROLL MACHINES**—Bulletin describes Monroe posting machines, multi-purpose machine, adding-calculator and grand total adding-listing machine. Monroe Calculating Machine Co. Inc.

☐ **12. MOLDING PRESSES**—High speed compression molding presses and high speed universal plunger molding presses

for production of molded plastics and soft rubber products are described in Bulletin 251 just released by The Baldwin Locomotive Works.

☐ **13. SILICONES**—First of series of progress reports on G-E silicones, designed to furnish up-to-date information on developments in silicone oils, greases, resins, water-repellents and insulating materials, covers Dri-Film, a water repellent. You may want to get your name on G-E mailing list to receive the series. General Electric Co., Resin & Insulation Materials Divn.

☐ **14. ELECTRICAL TOOLS**—Catalog No. 50 covers Metalmaster portable and pedestal electrical tools — drills and stands, hole saws, bench and pedestal grinders, buffers and polishers, flexible shaft equipment, etc. The Bradford Machine Tool Co.

☐ **15. SNAP GAGE**—Electrolimit snap gage, Model C, a portable comparator for checking outside dimensions right in the machine or in the inspection department, is covered by new bulletin just issued by Pratt & Whitney Divn. Niles-Bement-Pond Co.

☐ **16. DRILLING & TAPPING Machines**—Portable horizontal drilling and tapping machines is the subject of 22 page bulletin issued by Kaukauna Machine Corp. Machines offer wide range of machining operations in one unit, and combine the operations performed on conventional radial and horizontal machines. Machines can drill and tap at any angle in any plane.

☐ **17. PRE-CLEANING PROCESS**—Service report describes the Oakite CrysCoat Process for pre-cleaning, conditioning and rust-inhibiting ferrous metal surfaces in one operation prior to organic finishing. Oakite Products, Inc.

☐ **18. PATTERN COMPOUND**—Illustrated broadside describes Super Tamastone, and features unusual and interesting foundry applications. In addition to data on Tamastone, the piece gives information on various foundry specialties. Foundry Division, Tamms Silica Co.

☐ **19. SOLDERLESS WIRING**—Selection data book (with actual samples) on its entire line of solderless wiring devices is available from Aircraft-Marine Products. Book is plastic bound and displays the various types of solderless terminals, their features and their applications in a series of concise, illustrated charts. Pressure "crimps" are described in detail.

☐ **20. PROFILOMETERS**—Illustrated catalog on profilometer equipment for measuring surface roughness in microinches, is announced by Physicists Research Co. It covers the direct-reading Profilometer, the manually operated general purpose tracer, and complete line of accessory tracers for measuring in extra-deep holes, on small ID's, gear teeth, narrow slots and grooves. Application of equipment to quality control is discussed.

☐ **21. BAND MILL**—Bulletin 26B61192 covers 54-inch band mill, designed for low operating cost, inexpensive moving, and maximum cut of lumber. Allis-Chalmers Mfg. Co.

(Please turn to page 16)

ASK "PURCH" FOR THIS FREE, UP-TO-DATE LITERATURE
Four Pages — 14 - 16 - 19 - 20

Use convenient prepaid postcards on pages 19 & 20



G-E FLUORESCENT BALLASTS

can help you win favor for your fixtures

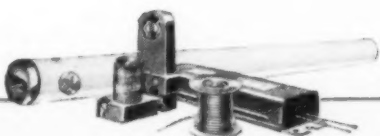
One good way to start and wind up a sales story on fluorescent fixtures is to say, "... the ballasts are G-E."

There's a reason for people's confidence in that name. With fluorescent lamp ballasts, it's the everlastingly watchful resting of raw materials and control of manufacturing processes which G-E maintains.

More than 20 tests assure the uniform quality of all ballast components. Completed ballasts are tested continually for voltage, heating and lighting characteristics. Finally, production line samples are subjected to *independent* tests by the Electrical Testing Laboratories*.

We realize you are not getting all the G-E ballasts you need as quickly as you want them, but please remember that we are doing our utmost to increase production, despite continuing material shortages.

BALLASTS LAMPS STARTERS
CABLE LAMP HOLDERS
for
DEPENDABILITY in fluorescent lighting



Silent salesman

The quiet operation of G-E ballasts can help a lot to *keep* your fixtures sold. So will the assurance they give of rated light output and freedom from maintenance expense. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

*Also listed by Underwriter's Laboratories, Inc

GENERAL  ELECTRIC

412-3-5206



(Continued from page 14)

□ **22. ELECTROPLATING**—Efficiency and economy of Selenium Rectifier DC power supplies is subject of new electroplating booklet published by Federal Telephone & Radio Corp. The book contains series of recommended plating room layouts.

□ **23. CALCULATING MACHINE**—Original-Odhner calculators, made in Sweden, which weigh only 12 pounds, are described in circular. New back transfer device automatically transfers the result from previous operations to the setting board, saving time for resetting. Ivan Sorvall.

□ **24. CHAIN HOISTS**—Bulletin H-100A describes new line of electric chain hoists made by the Whiting Corporation. It gives complete specifications, speeds, etc., for one-quarter, one-half and one-ton hoists.

□ **25. CHAIN BELTS**—Bulletin 46-10 describes Rex chain belts "for every industry." Standard chains are illustrated and described. Installation photos show how each style chain is applied, along with pictures of standard attachments and their uses. Chain Belt Co.

□ **26. BENDING MACHINE**—Duplex automatic hydraulic bending machine is subject of bulletin issued by Wallace Supplies Mfg. Co. Machine is designed for mass production in the bending of heavy wall tubing, pipe, conduit, angles, channels and bar steel. Wallace Supplies Mfg. Co.

□ **27. GUMMED TAPE MOISTENER**—Tape-Tack, gummed tape moistening solution, is described in Technical Service Bulletin No. 17, Paisley Products, Inc. It is for use in moistening for all operations where gummed tape, gummed labels, envelopes, stamps, etc. are used, and is non-staining, non-flammable, odorless. Its purpose is to bring out all the "tackiness" of the gummed tape. Maker states it makes for faster, speedier, more dependable sealing of boxes, cartons, etc.

□ **28. LAYOUT FLUID**—The Dayton Rogers Mfg. Co. will send you 1½ Combination Brush and Container of new layout fluid, which is recommended for all-around layout work on tools, dies, jigs and fixtures and machine castings. It may be used on brass, aluminum, stainless steel, etc. Scribed lines have pronounced contrast.

□ **29. ALUMINUM DUCTS**—"Reynolds Aluminum in Heating, Ventilating and Air Conditioning" is subject of booklet just released by Reynolds Metals Co. It treats of the use of aluminum for all types of ducts, fittings, dampers, plenum chambers, casings, smoke pipes, flues, vents, cooling towers, etc.

□ **30. DOUBLE HELICAL GEAR**—Bulletin 1958-A describes Worthington-Moore double helical gears, designed for economy of operation, high efficiency, quietness, and long life. Worthington Pump & Mch'y. Corp.

□ **31. FINISHING METAL PARTS**—Roto-Finish Mechanical Finishing of metal parts is subject of folder just published by The Sturgis Products Co. It shows the different types of metal stampings, die castings and other parts and products adapted to the process. Case studies cover operation time, cost and savings.

□ **32. STAINLESS-CLAD Steels**—Bulletin 338 describes the new Lukens clad steel line, and gives applications for the most important types of stainless cladding. Bulletin contains several pages of corrosion data, size and weight tables. Lukens Steel Co.

□ **33. ENCLOSED MOTORS**—The advantages of totally enclosed motors, of both the fan-cooled and the non-ventilated type for application to machine tools, are described and illustrated in 8-page bulletin MU-25A. Wagner Electric Corp.

□ **34. BUFFING**—The "What, Why and How" of the Lea Emulsion Spray Method, which is said to be featured by low compound consumption, higher production, clean work, buff-saving, and to give a uniform coating to the buff at all times, is described in printed matter available from The Lea Manufacturing Co.

□ **35. ELECTRONIC CONTROLS**—"Wheelco Electronic Controls" is the title of 20-page, three-color book, describing measuring and control systems. Book is a condensed catalog and contains listing and specifications on standard Wheelco instruments.

□ **36. RACEWAYS**—The three most common installations of Lopo-Trim, new low potential raceway, are illustrated and described in Booklet No. 543 issued by the National Electric Products Co. It is hollow steel quarter round, approved by telephone

companies, which is installed on top of a baseboard, as a toe-plate where wall and floor meet, or as a finish trim. Inter-communication and buzzer wires may also be tucked in the quarter-round trim before it is rigidly positioned.

□ **37. SHORT STANDARD DRILLS**—Leaflet features a full line of short standard drills of high speed steel, ranging in diameter from 1/16" to 2", and points out that the special design for screw machine work provides the correct whole length and twist cut with proper web thickness, making for easy penetration and chip clearance. Drills can be used to advantage in shallow hole drilling and in portable electric drills. Morse Twist Drill & Machine Co.

□ **38. PLASTIC SHEET-CREASER**—Taber Thermocreater for speed-creasing sheet plastics has been issued by Taber Instrument Corp. The creaser is a production-scale, precision type unit developed expressly to right-angle-crease cellulose acetate, ethyl cellulose, vinyl acetate and cellulose nitrate sheeting. It forms a 90° crease on sheeting .005"-.020" thickness up to 30" wide.

□ **39. THERMOSTATS**—Four-page folder describes line of adjustable and non-adjustable bi-metal thermostats. Temperature range zero to 650 deg. F., for 15 amp., 115 v a-c operation. Styles and construction details are illustrated. Stevens Manufacturing Co.

□ **40. SOLVES DRILLING Problems**—Bulletin describes the Enesay drill, which is said to penetrate both file-hard steel and soft alloys with ease, without impairing the metallurgical properties of the steel. It is designed for precision drilling and reaming to extremely close tolerances, and is said to be practically break-proof, and ideal for plastics drilling. Enesay Tool Co.

□ **41. ELECTRODES**—Pamphlets describe Champion High Speed Tool Steel Electrodes, and Champion 30. Pamphlet on former tells how to make composite roll turning tools, and planer, shaper and lathe cutting tools. The C-30 pamphlet describes proper electrode to use for building up wearing surfaces. The Champion Rivet Co.

□ **42. RELAYS**—Catalog 10-A issued by Guardian Electric Mfg. Co. illustrates a number of basic types (standard) a-c and d-c relays, and introduces several relay innovations including relays with replaceable coils, snap action switch relays, etc. Diagrams show each relay construction and dimensions.

□ **43. BRONZE ROD & TUBING**—Bulletin No. 69 covers Ampco Metal, Inc. continuous cast bronze rod and tubing. Many standard and special bronze alloys are now being produced commercially in 10 ft. rods and tubes. Other advantages include closely controlled dimensions, greater soundness, improved machinability and superior physical properties. Products can be fabricated on automatic screw machines.

□ **44. BOILER Water Level Controls**—Bulletin #147 describes new magnetrol multi-stage boiler water level control Models 126 and 251, and new combination boiler water column and controller, models W-126 and

(Please turn to page 19)

ASK "PURCH" FOR THIS FREE, UP-TO-DATE LITERATURE
Four Pages — 14 - 16 - 19 - 20

Use convenient prepaid postcards on pages 19 & 20



*Motor-Driven Centrifugal Pumps
for coolant supply*

Pumps that back up your design



*Rotary Geared Pumps
for general purposes*



*Rotary Geared Pumps
Reversible Type
for general purposes*



*Rotary Geared Pumps
for hydraulic service*

YOU'VE MADE SURE of everything about your machine design...including lubrication, coolant supply and hydraulic service. Now make sure that the pumps you specify back up your design—specify Brown & Sharpe Pumps.

Everything about these pumps... design, materials and manufacturing... is the result of long experience in fulfilling the pump requirements for machine tools and other machine equipment. The

aim of Brown & Sharpe in making this complete line of pumps is to provide the correct type of service, a completely dependable service and an enduring service for every pumping need.

Write for pump catalog which gives detailed specifications on the complete line of Rotary Geared, Vane, Centrifugal and Motor Driven Pumps. Brown & Sharpe Mfg. Co., Providence 1, R. I., U.S.A.



We urge buying through the Distributor



BROWN & SHARPE PUMPS



SHERARDUCT

Full weight, threaded rigid steel conduit.
"Sherardized" for enduring service.



XDUCT JUNIOR

Thin wall Electrical Metallic Tubing.
Electro-galvanized.



METAL MOLDING

3 sizes with the "lay-in" principle.
Smooth, neat appearance.



IPI and IFB BUS

PLUG-IN and FEEDER BUS systems.
Just plug-in the loads.



PLUG-IN STRIP

Wired multi-outlet assembly
Outlets every 18"
For real convenience.



NEPCODUCT

Modern under-floor wiring system.
For power, light
and communication circuits.

Modern
electrical systems for
every requirement



ELECTRICAL WIRE AND CABLE

Bare, insulated, ar-
mored and sheathed
wire and cable for
every location and re-
quirement. Complete
line of boxes and fittings
for all installations.



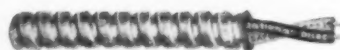
GORILLA GRIPS

Precision connectors.
No special tools required.



SURFACEDUCT

2 1/8" x 1 5/8" raceway for loads to 60
amp. Lay-in the wires.
Snap on the capping.



A.B.C. CABLE

Flexible steel armored bushed cable.
The bushing protects the wires.



FLORDUCT

Beveled, across-the-floor raceway.
Withstands the bumps.



WIREWA

Accessible 4 x 4 industrial wireway.
For circuits up to 600 volts.



LOOMWIRE


Non-metallic sheathed cable.
Complete line of Loomwire fittings
and boxes available.



All N. E. products are
approved by Under-
writers' Laboratories

• Sold nationally
through Electrical
Wholesalers

National Electric Products Corporation
Pittsburgh 30, Pa.



ask *Purch*

TO GET YOU THIS *Free*

INFORMATIVE LITERATURE

USE PREPAID POST CARD — PAGES 19 & 20

(Continued from page 16)

W-251, and also single stage control. Fred H. Schaub Engineering Co.

45. CEMENTED CARBIDE PRODUCTS—Catalog covers Kennametal cemented carbide products. New items listed include clamped-in solid round tools; tools having clamped-in blades for single grooving or cutting off operations; internal radius tools and blanks for round cornering of parts; milling cutters having inserted Kennametal-tipped blades; saws and router bits; masonry drills, and others. Kennametal Inc.

46. BLAST CLEANING—Catalog 214-a describes Wheelabrator swing table, an airless abrasive blast cleaning machine. Machine is available in 5 sizes, with sizes of the single work table being 24", 48", 66"m 72", and 86" in dia. American Wheelabrator & Equipment Corp.

47. OVER-RUNNING CLUTCH—Hilliard over-running clutch and coupling, is described in bulletin No. 231. Purpose of over-running clutch or coupling is to allow the driven member of a machine to "over run" or "free wheel" either because the driver is stopped or because another source of power increases the speed of the driven mechanism. Clutches are also used in ratchet operations or for positive "back-stops". The Hilliard Corp.

48. PRECISION SOLDERING—Catalog No. 7 describes Pres-to-Heat soldering tool which consists of a hand grip, actuating lever, fixed electrode, and movable electrode. Tool is designed for high-speed precision soldering, it can also be used for heat treating, annealing, tempering, brazing and butt-welding of small parts, and is said to be ideal for silver-soldering insulated electrical leads. Triton Mfg. Co.

49. EDGING MACHINE—Circular describes the Sturdy Edger for edging or reinforcing tracings, documents, shop prints, charts, loose leaf sheets, data sheets, etc. It edges paper of tissue thinness and can be ordered for taping materials as heavy

as ¼", and can be used to combine 2 sheets such as cellophane and paper. Vertex Co.

50. SPEED SELECTOR—Bulletin describes Variable V-Planetary infinite ratio speed selector, which employs planetary motion with four variable pitch sheaves and two standard cross section V-belts to provide any speed from zero to 800 rpm at constant torque from a constant speed power source. B. F. Goodrich Co.

51. PORTABLE POWER SAW—Bulletin 132 describes new Nordberg-Buday portable power saw and outlines its uses and advantages. It is easily adapted to various lumber cutting operations. Feature is rotating table top for changing from one cut to another. Saw is furnished in gasoline engine or electric motor driven types, and will take saw blade up to 12 in. in dia. Power Tool Dept., Nordberg Mfg. Co.

52. VALVES—Parker angle and offset industrial valves are covered in bulletin issued by Wallace Tube Co.

53. FABRIC TREATING COMPOUNDS—Featured by swatches of both untreated and treated fabrics, plain and in colors, new broadside describes B. F. Goodrich Company's Permaproof fabric treating compounds which are said to be flame, water and mildew proof when applied to fabrics developed by Goodrich in collaboration with Treesdale Laboratories, Inc. Methods of application are outlined.

54. BATTERY CHARGES—Pamphlet describes Motor Generator Corporation's latest model generators and four-circuit automatic equipment for charging motive power batteries used in electric trucks. Hobart Bros. Co.

55. PLANNING MODELS—Models cover complete line of materials handling equipment built to ¼" scale, for three dimensional layouts. Models consist of belt and roller conveyors, rack conveyors, motorized and hand trucks, shelving, bins, tote boxes, pallets, skids, etc. Catalog sent on request. Visual Production Planning Inc.

56. JET PUMPS—Simple method for determining correct type of jet pump for specific requirements is feature of bulletin #315 on portable jet pumps, issued by Derbyshire Machine & Tool Co. Charts and tables to facilitate proper selection cover wide range of conditions. Jet Pump Divn.

57. MILLING MACHINE—Bulletin M-1507-1 describes No. 2ML milling machines of the Cincinnati Milling Machine Co. Among features are quick and easy speed and feed changes through crank type controls; independent directional controls for power feeds; live rapid traverse; and pull-out micrometer dials.

58. CORROSION RESISTANT Coatings—Dy-Nes-Co corrosion resistant coating which serves as primer and finish coat; Dyna-Clad 1060, a thermoplastic which serves as primer and finish coat, and Dyna-Flex 2020, a plastic, strip film protective coating, are the subject of three bulletins issued by The Merchants Chemical Co.

59. SPINDLE GRINDERS—Bulletin describes vertical spindle grinders produced by Hanchett Manufacturing Co. It tells about improved surface grinding procedures with vertical spindle grinders—reciprocating-table types and gives complete machine data.

60. NON-SLIP FLOORS—Norton Company's Alundum terrazzo aggregate, cement floor aggregate, Alundum ceramic mosaic tile, and Alundum stair and floor tile, which are non-slip, wet or dry, are subject of new bulletin.

61. FIRE POT—Low pressure fire pot with "carburetor control", featuring adjustable air syphoning tube which enables the pot to operate at pressure of 20 to 30 pounds, is described in catalog sheet issued by The Turner Brass Works.

62. ROTARY PUMPS—Barnes Constant-flo Rotary Gear Pump featured by gear-tooth structure, and simple sturdy construction with only 2 moving parts, self-lubricating and self-priming are detailed in bulletin released by John S. Barnes Corporation.

63. SOLENOID—Solenoid consisting of only five component parts—base, armature, coil, coil locks and back stops, is described in 4-page catalog. Armature is designed with self-contained built-in pusher, making solenoid adaptable to push or pull work. Practical Electric Co.

(Please turn to page 20)

Postage
Will Be Paid
by
Purchasing

No
Postage Stamp
Necessary
If Mailed in the
United States

BUSINESS REPLY CARD

First Class Permit No. 16734, Sec. 510, P. L. & R., New York, N. Y.

PURCHASING

205 EAST 42nd STREET

NEW YORK 17, N. Y.

Ask "Purch" Dep't.



Dear "PURCH".

Send me the Literature checked below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84												

NAME..... Title.....

COMPANY

ADDRESS

CITY..... Zone..... STATE.....



(Continued from page 19)

☐ **64. DRILLING MACHINES**—Catalog No. 66 describes Sibley 24" and 28" drilling machines, with motor drive and belt guard. A 25" head travel on column and a 11" spindle feed permit a wide range of drilling. Sibley Machine & Foundry Corp.

☐ **65. TESTING MACHINE**—The Sonntag Model S-10 Universal Hydraulic Testing Machine is described in detail in Bulletin 182. It is a compact machine of 20,000 capacity designed especially for mass production testing. Baldwin Locomotive Works.

☐ **66. TERMITE CONTROL**—Bulletin 46-T describes "Chemical Control Methods for Termites and Lyctus Beetles," and the use of "Penta" Preservative—5% pentachlorophenol in petroleum solvent. Chapman Chemical Co.

☐ **67. LOCK NUTS**—Gripco Lock Nuts, featured by simple deflection of the thread, which eliminates washers and pins, are covered in bulletin released by Grip Nut Co.

☐ **68. MOLD POLISHING Service**—Bulletin describes mold polishing service available from Acme Scientific Co. Title is "Plastic Mold Polishing Service", which removes pits, scratches, waves, "lemon-peel" and tool marks and produces blemish-free mold surfaces.

☐ **69. DRILLING, TAPPING, BORING**—Natco automatic processing machines for drilling, tapping and boring are described in 28-page bulletin, which is featured by process diagrams showing operations for maximum output. National Automatic Tool Co.

☐ **70. AUTOMATIC TYPING**—Bulletins describe The Auto-Typist which is claimed to produce individually typewritten letters for as little as 2¢ each. Automatic typing is by means of record rolls and air pressure to actuate machine keys. In form letter work standard paragraphs are selected by push buttons, and can be typed by

machine in any sequence. The Auto-Typist is available in three models. American Automatic Typewriter Co.

☐ **71. DUPLICATOR**—The Davidson dual Duplicator which provides both offset and relief duplicating in one machine, is covered by bulletin issued by the Davidson Mfg. Corp. The user may reproduce from direct-image paper masters or metal offset plates, photographic offset plates, type, electrotypes, and rubber plates. Within its paper size range, 3" x 5" to 10" x 14", machine will handle practically the entire duplicating requirements of the average business. Preprinted paper masters are available.

☐ **72. SOOT REMOVERS**—"What do you know about Soot Removers?" is a four-page folder which describes ingredients commonly used in soot removers, their functions and relative effectiveness. Included also is a discussion of economical soot blowing practices. O'Brien Industries.

☐ **73. ELECTRIC LIFT TRUCK**—Power Jacklift is name of Lewis-Shepard electric lift truck which has 100% electric drive, 100% electric lift, and 100% electric brake. Operation with handle vertical permits use in congested areas. Platform model available in several platform widths and lengths and in 4000 and 6000 lbs. capacity. The Pallet model is available in several fork lengths and 4,000 lbs. capacity. Bulletin describes Power Jacklift in detail. Lewis-Shepard Products Inc.

☐ **74. TIME RECORDER**—Multi-purpose time recorder known as the TymanDater which can be used as an employees' attendance recorder, as a job time recorder and as a time stamp is described in bulletin issued by Cincinnati Time Recorder Co.

☐ **75. PLASTICS**—Here's another excellent booklet for your plastics file. "The Story of Plastics Molding" tells when to use molded plastics (and when not to use them), explains using the right material, etc., by charts, tables, text and illustrations. Chicago Molded Plastics Products Corp.

☐ **76. MATERIALS HANDLING**—An important subject for study by the purchasing agent. The Barrett Junior Catalog is jammed full of money saving ideas. Barrett Cravens Co.

☐ **77. ANOTHER PLASTICS BOOKLET**—Its title is "What Are Plastics?" This is a full color booklet issued by Plastics Division, Chemical Department of General Electric Co.

☐ **78. FASTENERS**—"Special Purpose Fasteners" is subject of new brochure issued by Lamson & Sessions. It answers numerous questions about the use of bolts, AN bolts, pipe plugs, place bolts, milled studs, lock nuts, etc., etc., that you and your production department should find of value. The Lamson & Sessions Co.

☐ **79. TECHNICAL PLASTICS**—Another must for your catalog file on plastics, the Synthane catalog on technical plastics. Synthane type plastics offer special mechanical, electrical and chemical properties for useful applications such as out-board motor pivot bearing that requires no lubrication, etc. Synthane Corporation.

☐ **80. MOTORS**—A new publication by Reliance Electric & Engineering Co. It describes their Series C motors which are designed and built to eliminate lubrication worries. Factory-lubricated motors perform years without additional lubrication.

☐ **81. HIGH PRESSURE PACKINGS**—Booklet describes Greene, Tweed & Company's Palmetto 2200 high pressure spiral packings which stand up against heat and pressure and lubricating oils and water.

☐ **82. ALUMINUM**—A new publication on aluminum. The title is "Reynolds Aluminum"—Available now for Today's Products". Among other products it tells about Reynolds R317-T screw machine stock which offers lower costs and lower weight. Reynolds Metals Co.

☐ **83. TEMPERATURE REGULATORS**—Catalog describes 923-T temperature regulator and other type Syphon regulators available with dial indicating thermometer. The Fulton Syphon Co.

☐ **84. SOLVING INSULATION PROBLEMS**—Bulletin GF gives comprehensive data on Continental-Diamond Fibre Company's non-metallic products for all types of electrical equipment. These include Dilecto, Celoron, Dilectene, Haveg (plastic chemical equipment, Pipe, Valves and Fittings), Diamond vulcanized fibre, Vulcoid and Micabond.

6/27

Postage
Will Be Paid
by
Purchasing

No
Postage Stamp
Necessary
If Mailed in the
United States



Dear "PURCH",
Send me the Literature checked below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84												

NAME..... Title.....

COMPANY

ADDRESS

CITY..... Zone..... STATE.....

BUSINESS REPLY CARD

First Class Permit No. 16734, Sec. 610, P. L. & R., New York, N. Y.

PURCHASING

205 EAST 42nd STREET

NEW YORK 17, N. Y.

ask "Purch" Dept.

Macwhyte Wire Rope Slings
are custom-built to your
specific requirements . . .
designed to assure the correct
sling for safe, easy, low-cost
handling of your materials



Macwhyte engineering service is available to help design the correct sling for your job. Our sling engineers will give you the benefit of their broad experience in designing hundreds of slings for handling loads similar to yours. Ask your Macwhyte distributor, or write Macwhyte Company.

Macwhyte also makes: MACWHYTE PREformed and Non-PREformed Internally Lubricated Wire Ropes . . . MONARCH WHYTE STRAND Wire Rope . . . Special Traction Elevator Rope . . . Stainless Steel Wire Rope . . . Monel Metal Wire Rope . . . Galvanized Wire Rope . . . Hi-Fatigue Aircraft Cables, Assemblies and Tie-Rods. *Catalog, literature on request.*

MACWHYTE WIRE ROPE SLINGS

Manufactured by Macwhyte Company

2918 Fourteenth Avenue, Kenosha, Wisconsin

Mill Depots: New York • Pittsburgh • Chicago
 Minneapolis • Fort Worth • Portland • Seattle
 San Francisco • Los Angeles

Distributors throughout the U. S. A. and other countries

Make
MACWHYTE
 your headquarters for
WIRE ROPE
SLINGS

NO. 917-S



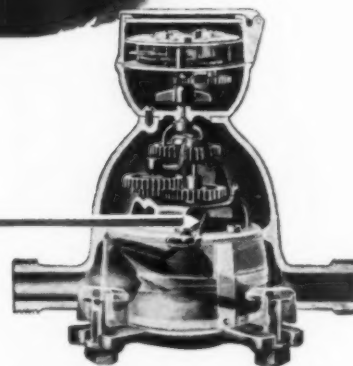
RIVERSIDE PHOSPHOR BRONZE HELPS KEEP THE RECORD STRAIGHT...

● Your Uncle Sam (We Americans) consume billions and billions of gallons of water every year. Water meters need herculean stamina to stay on the job 24 hours a day year after year accurately measuring all this water. Water has tremendous solvent powers (it even eats away hard rock), and it is a potent corrosive agent. Therefore component parts of a water meter must be made of the finest non-corroding materials obtainable.

Worthington-Gamon Meter Company, a cardinal producer of water meters (see above) use *Riverside Phosphor Bronze* for spindles and pinions, vital parts, which are subject to arduous punishment.

Riverside Phosphor Bronze has exceptionally high resistance to wear and to corrosion in dampness, fumes and salt and acid waters. It will not rust and it has a low coefficient of friction, presenting a good bearing surface.

Riverside Phosphor Bronze's advantages enable designers to plan better, more efficient products and effect many production economies. Investigate this remarkable alloy now and also get the story on *Riverside Nickel Silver* and *Beryllium Copper*. Write for catalogs.



Sectional View of Worthington-Gamon Watch Dog Disc Water Meter. Spindles and pinions are made of *Riverside Phosphor Bronze*.

INSIDE RIVERSIDE

Antidote Department: It'll take more than an ice bag to cure lead time headaches in the metal industries but—keep your fingers crossed—there is hope. We're still not boasting about our own lead time, but if you need something special in our field, count us in before you count us out. We may be able to help you.

RIVERSIDE

THE

RIVERSIDE METAL COMPANY

NEW YORK

CHICAGO

RIVERSIDE • NEW JERSEY

HARTFORD

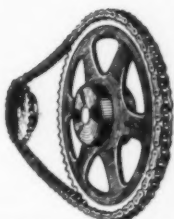
CLEVELAND

MODERNIZE DRIVES *for Exact Speed* WITH LINK-BELT P.I.V. GEAR SPEED VARIATOR

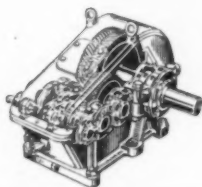
LINK-BELT POWER TRANSMISSION
MACHINERY SERVES ALL INDUSTRY



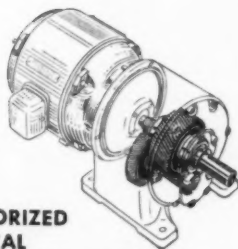
SILVERSTREAK SILENT
CHAIN DRIVES



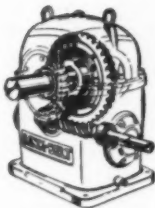
SILVERLINK ROLLER
CHAIN DRIVES



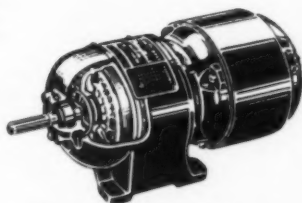
HERRINGBONE GEAR
SPEED REDUCERS



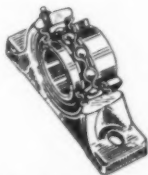
MOTORIZED
HELICAL
GEAR SPEED REDUCERS



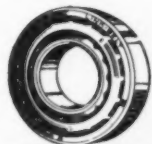
WORM GEAR
SPEED REDUCERS



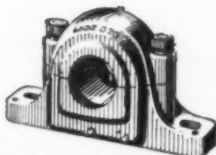
ELECTROFLUID DRIVES



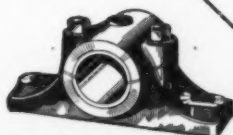
BALL BEARING
MOUNTED UNITS



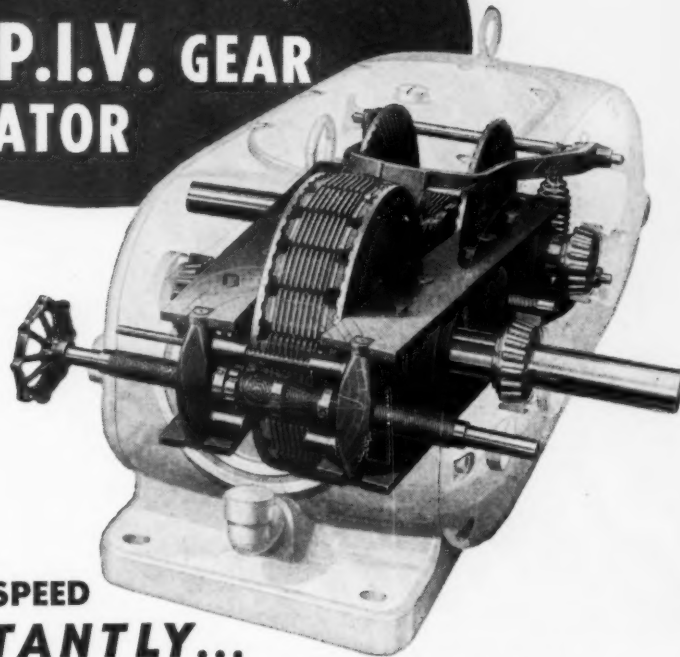
UNMOUNTED BALL
AND ROLLER BEARING
UNITS



ROLLER BEARING
MOUNTED UNITS



BABBITTED BEARINGS



GET
ANY SPEED
INSTANTLY...

**MAINTAIN IT ACCURATELY with this
POSITIVE, INFINITELY VARIABLE
Speed Changing Unit**

In any process where precise speed is a factor in quality, costs, efficiency or profits, the P.I.V. Gear speed variator supplies the ideal drive. With this unit, power is transmitted through an all-metal chain, making tooth-to-tooth contact with metal wheels. Within wide limits this unique, self-contained unit enables you to vary the speed of a driven machine to a minute fraction of a revolution per minute. Once selected, the chosen speed is maintained indefinitely, without slip or creep. Speed is changed while the drive is running by a small hand wheel, or by automatic or remote control.

Built for vertical or horizontal mounting, plain or motorized, and with or without enclosed reduction gears. From $\frac{1}{2}$ to 15 h.p. and ratios up to 6:1. Get book 1874 for full details.

LINK-BELT COMPANY

THE LEADING MANUFACTURER OF CONVEYING AND
MECHANICAL POWER TRANSMISSION MACHINERY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1,
Minneapolis 5, San Francisco 24, Los Angeles 33,
Seattle 4, Toronto 8. Offices, Factory Branch
Stores and Distributors in Principal Cities.

10,737



LINK-BELT

*Power Transmission
Machinery*

Things you can depend on...

● To standardize on brushes by Pittsburgh is to assure yourself of consistently high quality from order to order.

Because the strictest standards of raw material control are maintained . . . because exacting workmanship is demanded . . . Pittsburgh Brushes always conform accurately to carefully planned specifications.

When you specify Pittsburgh Brushes, you can expect the same dependable brushes from order to order. And get them promptly, too. For 144 Pittsburgh branches are conveniently located to give you "next door" service almost everywhere.

Ask our experts to help you select the right brushes for each of your requirements.

LIGHTHOUSE



and BRUSHES by Pittsburgh



PRODUCTION AND MAINTENANCE BRUSHES, TOO

● "Pittsburgh" also manufactures a full line of Industrial Brushes—including Floor Sweeps, Mill Dusters, and Wire Scratch Brushes. Our engineers will be glad to work with you in developing "Even Trim" Spiral Wound brushes of wire, horsehair or tampico to meet your own special finishing requirements.

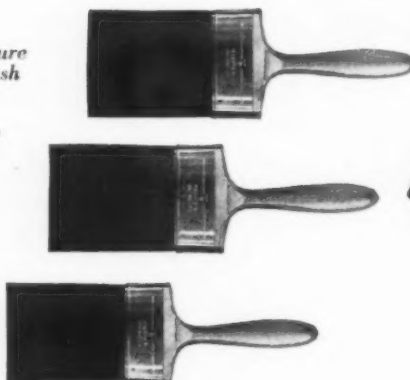
BRUSHES by PITTSBURGH—a Complete Line for Every Industrial Use

THREE FAMILIES

Pittsburgh's 100% Pure Bristle. No finer brush made today.

Pittsburgh's exclusive Bristle-Neocota. Top quality performance. Costs about 1/2 less.

Pittsburgh's 100% Neocota. Costs about half as much as pure bristle, yet gives excellent performance and has special advantages, such as high resistance to water.



AND

AS SOON AS
POSSIBLE
*Gold
Stripe*

the supreme quality brush
for every painting need.

PITTSBURGH
PLATE GLASS COMPANY

Brush Division

NO OTHER
HOIST
COMPARES
WITH IT!



NEW **CM** CYCLONE

Model M
HEAVY DUTY HIGH SPEED HOIST
Capacities from ¼ ton up

- **96% EFFICIENCY**
conserves worker energy
and increases productivity
- **42% FEWER PARTS**
simplifies maintenance
- **63% LESS WEIGHT**
yet definitely a heavy
duty hoist
- **Plus SEALED-IN LIFETIME
LUBRICATION**
simplifies servicing... prolongs
life... maintains efficiency
- **Plus HERC-ALLOY CHAIN**
America's First and Safest
Steel Load Chain

The Cyclone Model M Heavy Duty Hoist is entirely new, completely different. Size and weight have been greatly reduced, and strength and durability greatly increased through the use of today's stronger alloys of steel and Alcoa aluminum. Efficiency and ease of operation have been increased to new high levels through the use of precision ball bearings at all rotating points. The many advantages of this unusual hoist are being demonstrated daily on-the-job by thousands of Cyclone Model M's already in service. Ask your distributor to show it to you.

● New type load brake gives smooth, positive control at all times...exceptionally valuable in spotting or assembly work. Famous CM "Herc-Alloy" double duty alloy steel load chain is standard equipment on all models. The 1-ton model weighs only 35 pounds, has a minimum headroom of only 13⅝".

CHISHOLM-MOORE

HOIST CORPORATION

(Affiliated with Columbus-McKinnon Chain Corporation)

GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
SALES OFFICES: New York • Chicago • Cleveland • San Francisco • Los Angeles

Established SEALING PRACTICE



AXLE SHAFTS

TRANSMISSION SHAFTS

PINION BEARINGS

FAN SHAFT

PUMP SHAFT

WHEELS

STEERING MECHANISMS

TO RETAIN LUBRICANTS

TO EXCLUDE
FOREIGN MATTER

SIRVIS
MECHANICAL LEATHER

SIRVENE
SYNTHETIC RUBBER

CHICAGO RAWHIDE MANUFACTURING CO.
1318 ELSTON AVE. • CHICAGO 22, ILLINOIS

PHILADELPHIA • CLEVELAND • NEW YORK • DETROIT • BOSTON • PITTSBURGH • CINCINNATI
67 YEARS MANUFACTURING QUALITY MECHANICAL LEATHER GOODS EXCLUSIVELY AND NOW SIRVENE SYNTHETIC PRODUCTS



MORE LIGHT

on the advantages of

REPUBLIC ELECTRO PAINTLOK

—and it comes from a manufacturer of lighting equipment who uses this chemically-treated, zinc-coated steel sheet extensively in the manufacture of fluorescent fixtures.

He reports:

1. That ELECTRO PAINTLOK provides an excellent surface for 300° white baked enamel—that it produces a chip-proof, crack-proof finish that will not peel or craze.
2. That it protects against rust during storage in a high humidity area.
3. That it eliminates the need for pre-paint cleaning

with a degreasing fluid—eliminates extra pickling for storage and recleaning before use.

4. That it is easy to handle—to fabricate—to weld.
- Do you make a sheet steel product requiring painting, lacquering or enameling? Then you should learn more about Republic ELECTRO ZINC PLATED SHEETS—how they improve products—and how they cut costs. Write to:

REPUBLIC STEEL CORPORATION
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

Republic Electro Zinc Plated Products include ELECTRO PAINTLOK and ELECTRO ZINCBOND in sheets and coiled strip, in various widths depending on gauge involved.

Republic
ELECTRO ZINC PLATED SHEETS
Electro Paintlok • Electro Zincombond



Other Republic Products include Carbon, Alloy and Stainless Steels—Sheets, Strip, Plates, Bars, Pipe, Tubing, Bolts and Nuts, Wire



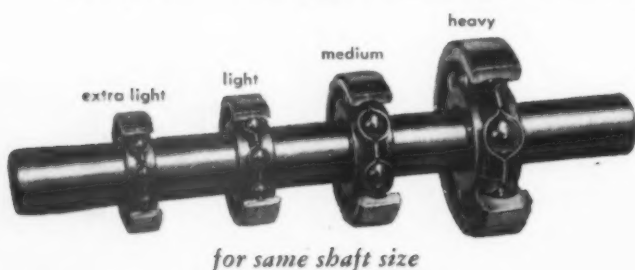
HOW *THIN* CAN YOU SLICE A BALL BEARING?

HOW MUCH STEEL must you have around the balls in a ball bearing to do the job you're buying it for? That's a lot bigger than any \$64 question to any factory manager trying to keep down unnecessary weight, bulk and cost.

Fafnir's got the answer all ready . . . a whole series of answers. They've been working on it for years and years . . . slicing off excess weight, useless bulk,

needless cost. They've developed series after series of bearings . . . to carry ton loads or to transmit the impact of a cat's whisker . . . to handle the terrific peripheral speeds of modern machine tool spindles or to glide gently at the touch of a finger.

That's Fafnir's job . . . to help you get all the ball bearing smoothness and stamina you need at the lowest price in pounds, inches and dollars. There's a Fafnir distributor ready to go to work with you slicing ball bearings as thin as you need them. The Fafnir Bearing Company, New Britain, Conn.



FAFNIR BALL BEARINGS
MOST COMPLETE LINE IN AMERICA



*Removes Hard Carbon
Resists Sludging
Saves Wear & Repairs*
CUTS SHUTDOWN TIME



NATURALUBE D. H. D. IS GUARANTEED!

If you don't believe that D. H. D. is the best oil you have ever used, Lion Oil Company will give you your money back.

For normal service where D. H. D. is not required, use Naturalube Motor Oil (Not so heavily reinforced.)



More Power—Lower Operating Costs

Naturalube D. H. D. is refined from a basically different crude oil. It has *natural* ability to remove hard carbon, a naturally tougher protective film and greater *natural* penetrative and adhesive properties. It is non-corrosive—safe! And in addition, it is specially reinforced to give greater resistance to the formation of sludge and lacquer.

To fleet owners, that means that D.H.D. saves wear . . . saves repairs . . . keeps engines cleaner and able to deliver maximum power. Operating costs are lower because fuel and oil consumption is lower.

Leading engine manufacturers accept D. H. D. as a superior lubricant. For complete information about Naturalube D. H. D. ask your Naturalube Distributor or write direct to Lion Oil Company, El Dorado, Ark.

LION OIL COMPANY

**EL DORADO,
ARKANSAS**

Here, your Spring gets



-Point Production Analysis

for SIZE OF ORDER

for UNIFORMITY (if repeat order)

for PROPER TOOLING

for SPECIALIZED MACHINERY

... Springs made by Wallace Barnes are job-engineered—appraised for those specifications which, if not properly anticipated, may result in extra operations which naturally means extra cost. By use of specialized departments, ingenious machines and toolmakers with experience and imagination, operations are reduced to a minimum consistent with quality and quantity desired. Wallace Barnes job-engineering, working simultaneously with your design-engineering, should result in the greatest production economy and the best spring for your purpose.

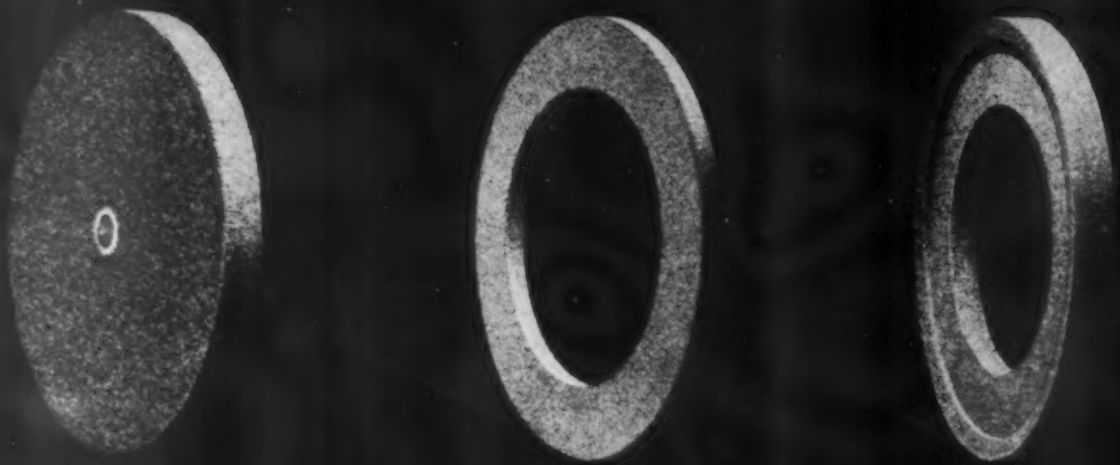
Wallace Barnes SPRINGS

SMALL STAMPINGS • WIRE FORMS • HAIRSPRINGS • COLD ROLLED SPRING STEEL

**WALLACE BARNES COMPANY
BRISTOL, CONN.**

DIVISION OF THE ASSOCIATED SPRING CORP.

AND IN CANADA, THE WALLACE BARNES CO., LTD., HAMILTON, ONTARIO



Production really rolls with job-designed wheels

Are you interested in speeding up production—in smoothing the rough edges on your grinding bill?

Then consider your grinding wheels. Production really rolls when you use the *right* wheels. But production creeps and falters when you use *wrong* ones. And it all shows up on the records.

For 58 years, men in your industry have been getting the right wheels and faster production by consulting Peninsular.

Call in Peninsular engineers on your job. They will study your grinding thoroughly. From this study, they will develop job-designed grinding wheels for best possible results at lowest possible costs. *Every* Peninsular grinding wheel is specially made for its particular job.

The Peninsular Grinding Wheel Co., 729 Meldrum Ave., Detroit 7, Sales Offices: Chicago, Philadelphia, Boston, Buffalo, Cleveland, Pittsburgh, Houston, St. Louis, Cincinnati.

PENINSULAR

INDIVIDUALLY  ENGINEERED

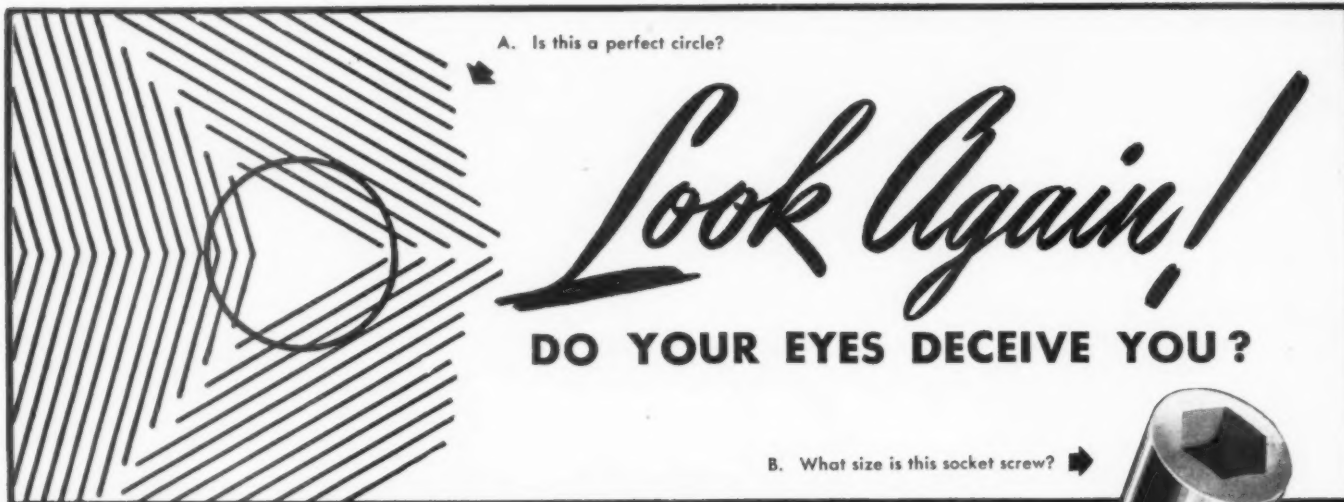
GRINDING WHEELS

SINCE 1889

SPECIALISTS IN RESINOID BONDED WHEELS

This Peninsular "wagon wheel" has a rim which is a stand grinding wheel for rough grinding, the hub is a portable grinding wheel, and spokes are crankshaft balancing wheels.





● "Eye-gauging" shapes or sizes quickly and accurately isn't reliable, even for experts. Many a shop veteran failed in a recent test that required judging the size and pitch of an ordinary socket screw. It proved that "miking" is the only sure way to avoid errors . . . but that takes time.

The **SIZE-MARK** on the head of every P-K Socket Head Cap Screw ends gauging or guessing. It's an "exclusive" P-K feature . . . developed after an extensive study of shop practice.

Tool crib bosses like the **SIZE-MARK** because it speeds up sorting of left-over, mixed-up screws . . . eliminates

waste. Assembly workers like it because it speeds the job. Apprentices like it because it helps them learn faster—work faster. And sales managers recognize its advantages to customers' service men in the field on reassembly jobs.

PLUS . . . GEAR GRIP*

Makes fingers fly faster . . . because it prevents them from slipping even when oily. Only P-K offers Socket Head Cap Screws with both features.

SAMPLE KIT FREE. Compare and judge for yourself. Write Parker-Kalon Corp., 200 Varick Street, New York 14, N. Y.

Answers:
A. It is a perfect circle.
B. No question if it's Size-Marked!

You're sure at a glance
IF IT'S P-K... IT'S SIZE-MARKED

P-K SOCKET SCREWS ARE AVAILABLE
FOR PROMPT DELIVERIES. SEND FOR STOCK LIST NOW.

*U.S. Pat. No. 126,409



SOLD ONLY THROUGH ACCREDITED DISTRIBUTORS
PARKER-KALON *Cold-forged* **SOCKET SCREWS**

Another P-K First—GROUND THREAD Socket Set Screws

● Smooth, mirror-bright, clean-finished threads—centerless ground on hardened blanks. Accurate contour and lead, dependable Class 3 Fit. Free from imper-

fections common to ordinary cut thread set screws . . . a "shining example" of good workmanship. Ask for samples. You'll see the difference.



Maybe you need
 an arithmetic lesson
 in Aluminum
 Screw Machine stock

Add, divide, subtract or multiply—the answer comes out “Alcoa Aluminum” when you figure costs on the basis of finished pieces per pound of stock.

We'll be glad to help you with your arithmetic. Call or write your nearest Alcoa Sales Office. ALUMINUM COMPANY OF AMERICA, 1931 Gulf Bldg., Pittsburgh 19, Pa. Sales offices in leading cities.

MORE people want MORE aluminum for MORE uses than ever

ALCOA FIRST IN
ALUMINUM

IN EVERY COMMERCIAL FORM



Don't Lubricate until 1952



Says
Electric Machinery Mfg. Co.
of Minneapolis, Minn., another
user of Norma-Hoffmann's
Patented "Cartridge" Bearings

The new "Regulectric" generators need no adjustments, no maintenance, no attention for years and one reason is—

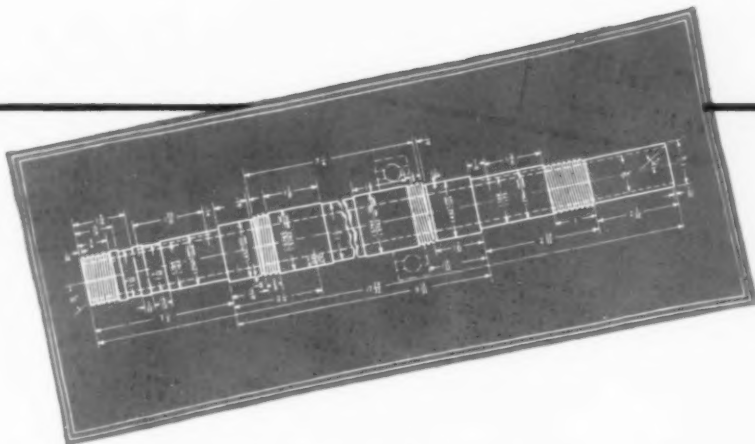
... the bearings are sealed as effectively as are the components of the built-in regulating circuit.

Made to double-row width, these "Cartridge" Bearings have 100% more grease capacity than any other standard self-sealed type and they also permit added shaft strength and reduced overhang. Write for all the facts on Norma-Hoffmann's "Cartridge" Bearings.

NORMA-HOFFMANN **Precision BEARINGS** **BALL • ROLLER • THRUST**

NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT
FIELD OFFICES: New York, Chicago, Cleveland, Detroit,
Pittsburgh, Cincinnati, Los Angeles, San Francisco, Seattle, Phoenix

The Steel Tube "Headache" that Multiplies Itself



TO MAKE this "Petro" oil burner shaft, a seamless steel tube is turned and ground to 17 separate diameters. It's threaded, tapped, chamfered and keywayed—all to close tolerances.

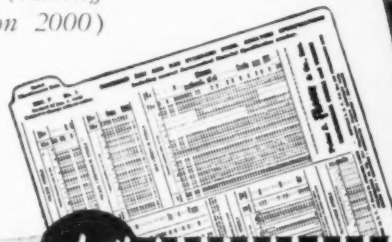
The cost of making this finely balanced shaft (8 times that of the raw material) makes rejection of a finished part highly expensive. Hours of skilled labor might be spent on material later found defective—while the cost headache multiplies with every wasted man hour.

Frasse tubing has been successfully used by the manufacturer in this rigid application for years. If you're interested in cost reducing (and who isn't these days) you'll find tubing of the selfsame quality in any Frasse warehouse.

Frasse stocks include seamless and welded mechanical tubing, aircraft, condenser and pressure tubing, and stainless steel tubing and pipe. Complete range of sizes and grades to choose from—shipment made overnight. Call us. *Peter A. Frasse and Co., Inc., 17 Grand Street, New York 13, N. Y. (Walker 5-2200) • 3911 Wissabickon Avenue, Philadelphia 29, Pa. (Radcliff 5-7100) • 50 Exchange Street, Buffalo 3, N. Y. (Washington 2000) Jersey City • Syracuse • Hartford • Rochester • Baltimore*



*Courtesy Petroleum
Heat & Power Co.*



New

Latest Frasse Data Chart shows up-to-date analyses specs for all standard steels. Gives AISI number, analyses of each steel and corresponding SAE and AMS numbers. Invaluable to steel users—mail coupon for free copy today.

Peter A. Frasse and Co., Inc.
17 Grand Street, New York 13, N. Y.

Please send me a copy of your latest data chart on standard steel analyses, Sec. F No. 1.

Name: _____

Firm: _____

Address: _____ 32AA



FRASSE

SEAMLESS AND WELDED
CARBON • ALLOY • STAINLESS

*for Steel
Tubing*

STANDARDS and SPECIALS

by the *Millions*

Simply Specify -

"SHINYHEADS"

NC or NF Thread

"HI-CARBS"

NC or NF Thread

"SHINYLANDS"

Standard Thread

"SHINYHEADS"

America's Best Looking Cap Screw

Made of high carbon steel—AISI C-1038—to standards for full finished hexagon head cap screws. Heads completely machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Carried in stock.



"HI-CARBS"

Heat Treated Black Satin Finish

Made of high carbon steel—AISI C-1038. Furnished with black satin finish due to heat treatment. Hexagon heads die-made, not machined. Point machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.



FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots—less burrs. Flat and chamfered machine point. Carried in stock.



FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots—less burrs. Flat and chamfered machine point. Carried in stock.



SET SCREWS

Square head and headless—cup and oval point—case hardened. Carried in stock.



"SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered point. Nut end, oval point. Carried in stock.



"SHINYTHREADS" AIRCRAFT ENGINE STUDS

Made of highest aircraft quality alloy steel, finished to extremely close thread and body tolerance, with precision rolled threads—both straight and step types.



CONNECTING ROD BOLTS

Made of alloy steel—heat treated—threads rolled or cut—finished to extremely close thread and body tolerances—body ground where specified.



SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



VALVE TAPPET ADJUSTING SCREWS

Hexagon head style—to blueprint specifications—hexagon head hard; polished if specified—threads soft to close tolerance.



STANDARDS

carried by
**LEADING
DISTRIBUTORS**

SPECIALS

furnished to
**BLUE PRINT
SPECIFICATIONS**

THE FERRY CAP & SET SCREW CO.
2165 SCRANTON ROAD
Pioneers and Recognized Specialists, Cold Upset Screw Products since 1907
CLEVELAND 13, OHIO

WRITE FOR INFORMATION—
• SEND FOR SAMPLES •

... how the right INSULATION ...



Condenser room of a large midwestern utility. As is customary in many plants, some of the lines have been painted to identify service.

can bring results like THIS

Chemical Plant	"Featherweight" saves us \$1055 annually on fuel. We are very pleased.
Beverage Plant	temperature drop in vat held to 19° in 64-hour weekend shutdown. saved us considerable time and fuel when we resumed.
Refinery	Gives us exact temperature control. enormous fuel savings. In our plant this is a matter of vital concern.
Steel Mill	"Featherweight" saved us \$1750 in one month. We expect to find similar savings in the months and years to come.
Process Industry	1,500,000 BTU's saved every day with "Featherweight" 85% Magnesia pipe insulation. temperature drop in vat helped us conserve.

K & M "Featherweight" 85% Magnesia



Closeup view of K & M 85% Magnesia Insulation, complete with Canvas Jacket, on portion of piping.

You're sure to lower your fuel consumption, increase efficiency when you specify K&M "Featherweight" 85% Magnesia Insulation. You have more than just our word for it... actual performance under a wide variety of service conditions has *proved* "Featherweight" to be the most efficient insulation of the moulded type, for temperatures up to 600°F.

In "Featherweight," you get the structural strength of asbestos fibre and the insulating perfection of magnesia... a light-weight, durable, fire-resistant combination that will give you optimum service over an indefinite period of time.

K&M Distributors, located strategically throughout the country, are expert applicators of K&M insulation materials. Let them help you gain substantial savings in your plant. Write for full details.

Nature made Asbestos . . .

Keasbey & Mattison has made it serve mankind since 1873



Reg. U. S. Pat. Off.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



Products that smell good, sell good!

This inviting truth is basic in many a business—as surely as it lures a boy to a pie, the principle of chemical attraction often defines the path to added sales.

Used for years to contribute sales appeal to foods, candies, perfumes, cosmetics, Monsanto flavor principles are today doing a selling job on many new fronts. Not only do they *add* intriguing flavors and fragrance; often they are used to *remove* objectionable odors inherent in products like rubber, paint and printing inks. Still other products, such as cutting oils, lose

their disagreeable odor when Monsanto Chemicals are added; thus helping management “sell” employees more agreeable working conditions.

Yes—smells sell! If you wish to know more about using this proved sales strategy in your business, a contact with Monsanto may reward you with the right chemical answers.

MONSANTO CHEMICAL COMPANY, St. Louis 4

District Sales Offices: Akron, Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Dayton, Detroit, Los Angeles, New York, San Francisco, Seattle, Springfield, Washington, D. C. In Canada: Monsanto (Canada) Limited, Montreal.



SEND FOR FOLDER ABOUT SMELLS THAT SELL

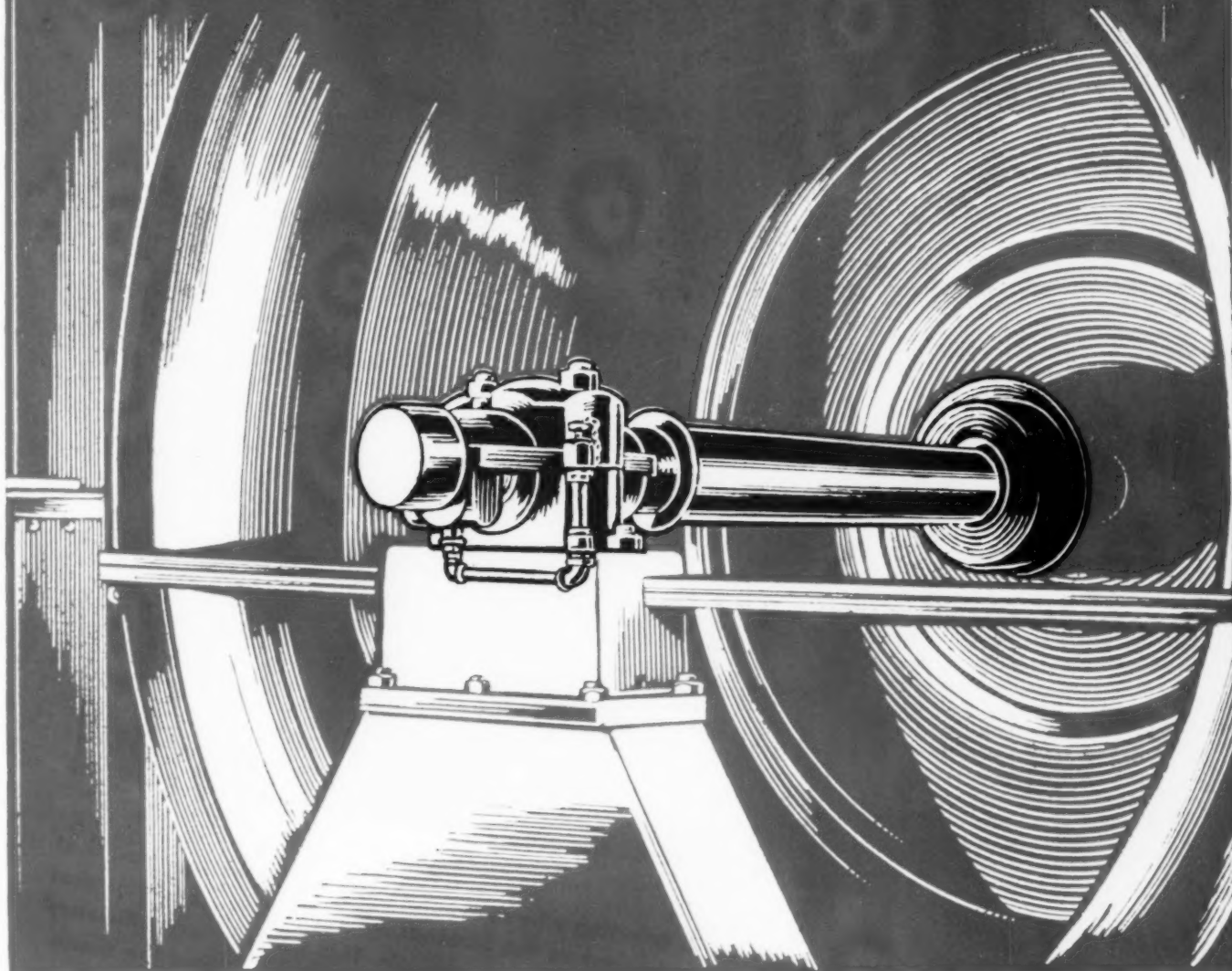
Send for your copy of Monsanto's new folder “Flavors and Aromas that Sell,” describing these Monsanto products:

Alcohol (medium for flavor, odor principles) • Benzyl Benzoate (perfume fixative) • Coumarin Monsanto (flavor and odor principle) • Diethyl Phthalate (fixative for perfumes) • Ethavan* (ethyl vanillin) • Methyl Salicylate Monsanto (synthetic oil of wintergreen) • Phosphoric Acid (used as flavor principle) • Saccharin (sweetening agent) • Santomask* (masking agent for objectionable odors) • Santomerse* (wetting agents) • Vanillin (flavor principle and odorant)

*Reg. U. S. Pat. Off.

SERVING INDUSTRY . . . WHICH SERVES MANKIND

"BEARINGS RUN 10% COOLER



since changing to Tycol industrial greases



**Boston • Charlotte, N. C.
Pittsburgh • Philadelphia**



***"Production speeded 65%...
Repair costs slashed 30%...
Deposits eliminated...
Highly stable...
Consumption cut 25%..."***

This report from a plant engineer typifies the kind of trouble-free, cost-cutting lubrication provided

by Tycol Industrial greases. They contain more high-grade cylinder oil—less soap—which means better performance in every application.

For aid in the selection of Tycol greases best suited for your particular needs, contact your nearest Tide Water Associated office today.

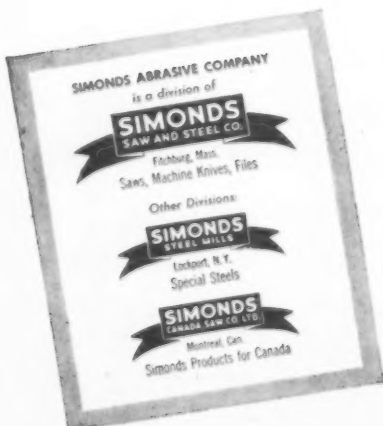
LUBRICATION—"ENGINEERED TO FIT THE JOB"

At the
sound
of the
*Musical
note*



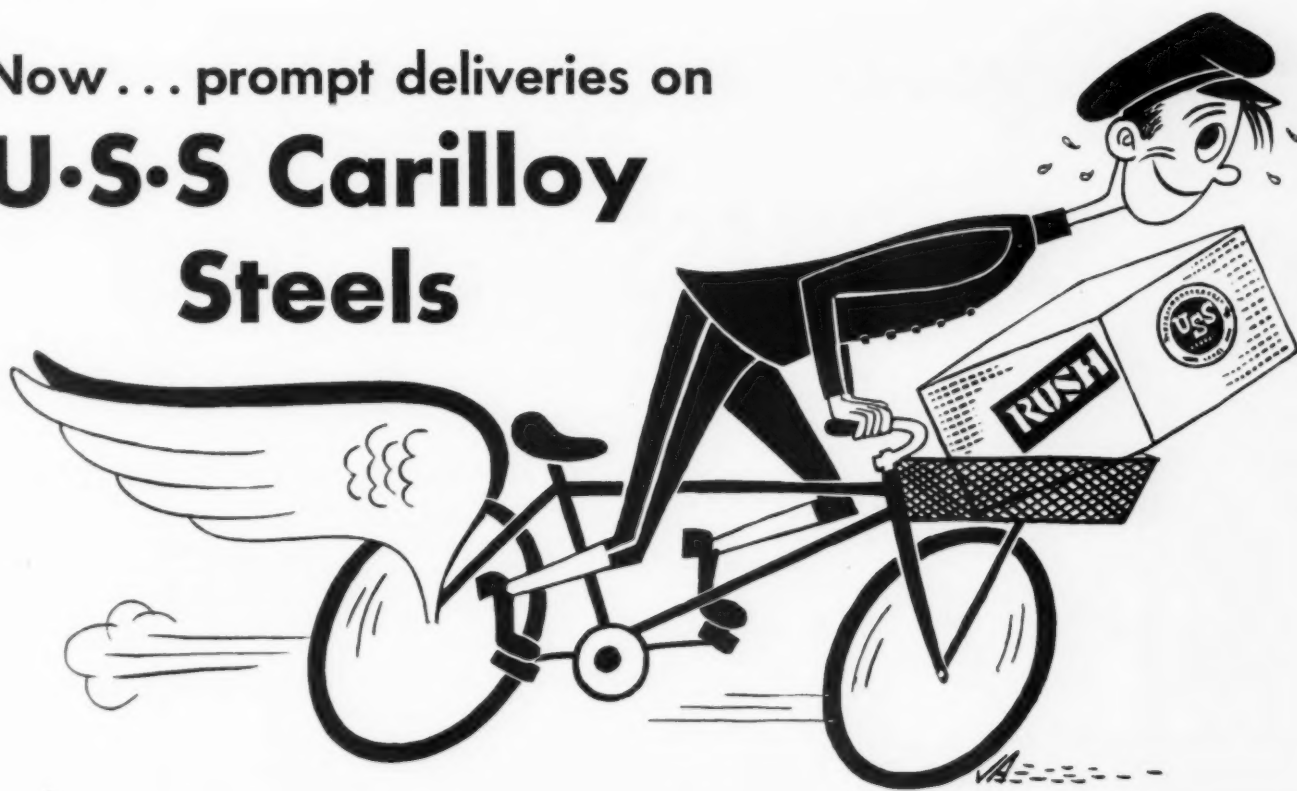
When you tap this grinding wheel, a clear answering note tells you that it is free from cracks, just as the Simonds Abrasive label tells you that it is ready for top performance on the job. This performance efficiency is characteristic of all Simonds Abrasive Wheels . . . a precision manufactured line of the most minute variations of grain, grade, structure and bond, skillfully engineered into thousands of abrasive combinations for every industrial use. Careful handling will prolong the efficiency of these performance proven wheels. The tap test is a quick way of determining whether essential wheel care is being maintained.

The Simonds Abrasive Data Book contains information you need for better grinding results. Send for your copy today. For assistance in requisitioning consult your nearest Simonds Abrasive Distributor.



SIMONDS ABRASIVE COMPANY, PHILADELPHIA 37, PA.
DISTRIBUTORS IN ALL PRINCIPAL CITIES

Now . . . prompt deliveries on U·S·S Carillooy Steels

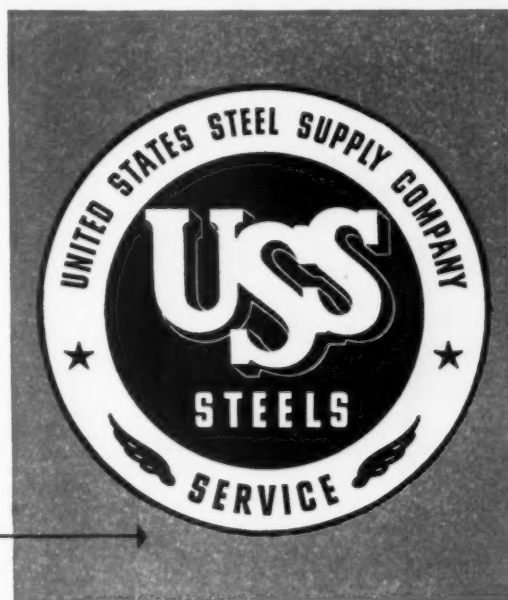


... the alloy steels with a Guaranteed Minimum Hardenability

YOUR alloy steel requirements are best served by our stocks of constructional AISI alloy steels readily available from our warehouses. U·S·S Carillooy Steels are manufactured to a *Guaranteed Minimum Hardenability*. Charts are furnished with each shipment to you as your guide and assurance of this *Guaranteed Minimum Hardenability*.

Moreover, when you place an order for U·S·S Carillooy Steel, our metallurgical service goes a step further: *We send you data with each individual shipment showing complete and specific information about the steel you receive.* This specific data on its composition, potential physical properties and fabrication will guide you in obtaining maximum performance from the steel furnished on your order.

Take advantage of all this information in supplying your alloy steel requirements. Use U·S·S Carillooy Steels from our large stocks.



Symbol of Service FOR STEEL USERS

UNITED STATES STEEL SUPPLY COMPANY

CHICAGO (90)	1319 Wabansia Ave., P. O. Box MM	BRUnswick 2000	NEWARK (1), N. J.	Foot of Bessemer St., P. O. Box 479	Bigelow 3-5920 REctor 2-6560, BErgen 3-1614
BALTIMORE (3)	Bush & Wicomica Sts., P. O. Box 2036	GIlmor 3100	PITTSBURGH (12)	1281 Reedsdale Street, N. S.	CEdar 7780
BOSTON	176 Lincoln St., (Allston 34), P. O. Box 42	STAdium 9400	ST. LOUIS (3)	21st & Gratiot Sts., P. O. Box 27	MAin 5235
CLEVELAND (14)	1394 East 39th St.	HEnderson 5750	TWIN CITY	2545 University Ave., St. Paul (4), Minn.	NEstor 7311
MILWAUKEE (1)	4027 West Scott St., P. O. Box 2045	MITchell 7500			

UNITED STATES STEEL

Seamless and Welded

STAINLESS STEEL TUBES

... all kinds for
all purposes from
ONE SOURCE

ALL THESE AND MORE

Croloy 12

Croloy 12-Al

Croloy 16

Croloy 18

Croloy 22

Croloy 27

Croloy 18-8S

Croloy 20-10

Croloy 18-8Ti

Croloy 18-8Cb

Croloy 16-13-3

Croloy 18-13-3

Croloy 25-20

Physical and mechanical properties, application and fabricating data, and other pertinent information on B&W Croloy Stainless Steel Tubing are contained in Technical Bulletin No. 1. Would you like a copy?

B&W is the logical place to come for your Stainless Tubing requirements for any kind of pressure, process or mechanical uses for several sound reasons:

...B&W makes BOTH Seamless and Welded Stainless Tubing.

...B&W offers you the widest range and number of ferritic and austenitic analyses available from a single source...many of them available from no other supplier.

...B&W produced the first Stainless Tubing commercially in America; therefore has acquired a wealth of experience and data which users will find helpful in selecting the Stainless analysis best suited for any service condition of corrosion, temperature, pressure, contamination, and for any mechanical use. All B&W Stainless tubing can be furnished in any standard finishes. More information on Croloy Stainless Tubing is available in Bulletin No. 1.

TA-14075

**BABCOCK
& WILCOX**
**SEAMLESS
& WELDED TUBES**

THE BABCOCK & WILCOX TUBE COMPANY
GENERAL OFFICES: BEAVER FALLS, PA.
PLANTS: BEAVER FALLS, PA. AND ALLIANCE, OHIO.

first to develop a corrugated OCTAGON box for bulk glassware



The OCTAGON Box, an advancement in packaging bulk glassware, was introduced by Hinde & Dauch. About half the size of the conventional unit, the H & D OCTAGON is easier to pack and unpack, easier to handle, saves space and weight, reduces shipping costs. In addition to these important features, this attractive package also carries an effective advertising message and trade name design. Most of these advantages have been available to manufacturers in other lines since the advent of PREPAK*, DUPLEX, SELMOR* and many other H & D corrugated packaging "firsts" . . . advancements that have saved thousands of dollars through lower packaging and shipping costs, less damage in transit, and decreased distribution and sales costs. The Hinde & Dauch Paper Co., 4705 Decatur St., Sandusky, Ohio.

*TRADE MARKS REG. U. S. PAT. OFF.



FOR PACKAGING
"firsts"

HINDE & DAUCH · *Authority on Packaging*

FACTORIES IN: Baltimore 13, Maryland • Buffalo 6, N. Y. • Chicago 32, Illinois • Cleveland 2, Ohio • Detroit 27, Michigan • Gloucester, N. J. • Hoboken, N. J. • Kansas City 19, Kansas • Lenoir, N. C. • Montreal, Quebec • Richmond 12, Virginia • St. Louis 15, Missouri • Sandusky, Ohio • Toronto, Ontario • Boston, Mass.



Efficient protection for every product you package

Whatever your product . . . wherever you send it . . . strong, cushiony KIMPAK* gives it the finest protection. Whether the item shipped is delicate as glass or as tough as steel, KIMPAK safeguards its trip to market surely and economically. For there are specifications of KIMPAK to meet all requirements of the Four Basic Methods of Interior Packaging — Blocking and Bracing . . . Flotation Packaging . . . Absorbent Packaging . . . and Surface Protection.

KIMPAK is an interior packaging material that's resilient . . . feather-light . . . flexible as a woolen blanket. It can be made liquid absorbent or liquid re-

pellent. Is shock-absorbent, chemically neutral, soft, and grit-free. Available in a wide variety of forms from pads to rolls, designed to make your product-packaging an easy, low-cost operation.

Learn how the remarkable advantages of KIMPAK can work profitably for you. Phone your local distributor today. Or write Kimberly-Clark Corporation, Creped Wadding Div., Neenah, Wisconsin.

We are producing all the Kimpak Creped Wadding we possibly can, but due to the great demand, your distributor may have some difficulty in supplying you immediately.

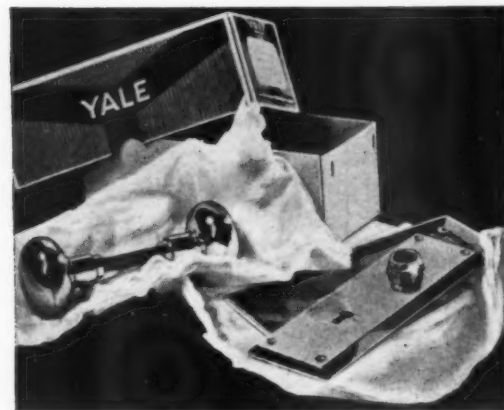
Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES



CREPED WADDING

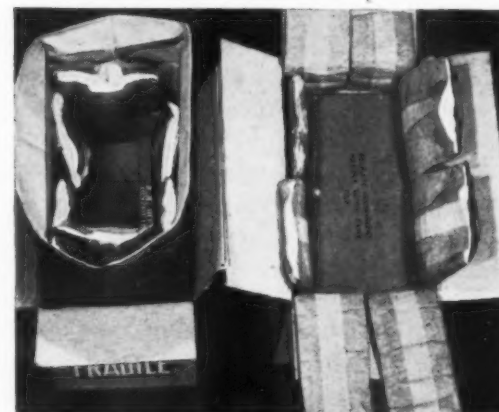
*KIMPAK (trademark) means Kimberly-Clark Creped Wadding



SURFACE PROTECTION — Builder's Hardware
Photo courtesy Yale and Towne Mfg. Co.



ABSORBENT PACKAGING — Angostura Bitters
Photo courtesy Angostura-Wupperman Corp.

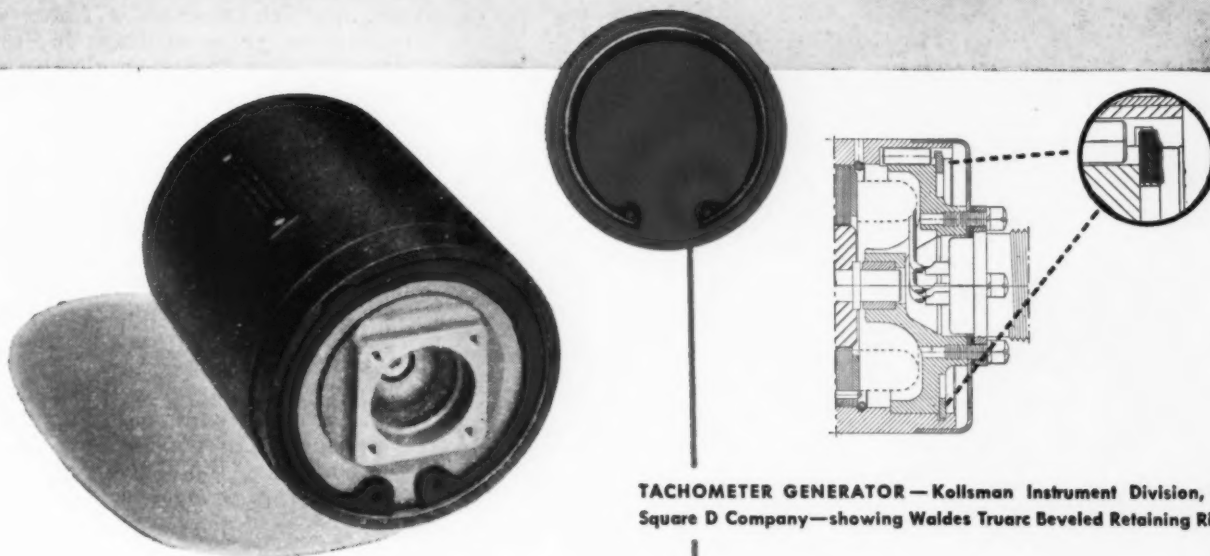


FLotation PACKAGING — T-1 Bombsight
Photo courtesy AC Spark Plug Div., General Motors Corp.



BLOCKING AND BRACING — Airplane Instrument
Photo courtesy National Die Casting Co.

Truarc Beveled Ring takes up end-play, eliminates shims, saves 20 minutes' assembly time



TACHOMETER GENERATOR — Kollsman Instrument Division, the Square D Company—showing Waldes Truarc Beveled Retaining Ring.

When installed in a groove with a corresponding bevel, the tapered edge of the Beveled ring acts like a wedge and rigidly bridges end-play. End-play can also be taken up resiliently by another type Truarc ring—the Bowed.

Wherever you use machined shoulders, nuts, bolts, snap rings, cotter pins—there's a Truarc ring that does a better job of holding parts together. All Truarc rings are precision engineered, easy to assemble and dis-assemble, always circular to give a never-failing grip. They can be used over and over again.

See what can be done for your product: send a drawing to Waldes Truarc Technical Service Engineers for individual attention without obligation.

One Waldes Truarc Beveled Retaining Ring gives Five big advantages:

- Secures the cover with its connecting parts in the housing against strong pressure, heavy vibration
- Absorbs accumulated tolerances up to .010 (ring diameter is 1.9375)
- Eliminates shims, saves material and weight
- Saves 20 minutes' assembly time
- Simplifies field maintenance by facilitating quick dis-assembly, re-assembly

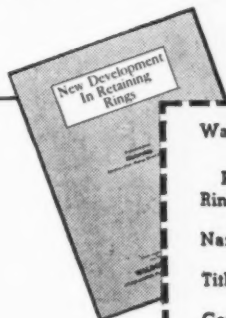


WALDES
TRUARC

Reg. U. S. Pat. Off.

RETAINING RINGS

WALDES KOHINOOR, INC., LONG ISLAND CITY 1, NEW YORK
Canadian Distrib.: Controlite Engineering & Sales Ltd., 20 Bloor Street W., Toronto 5



***Mail this coupon today for your copy of
"New Development in Retaining Rings"**

Waldes Kohinoor, Inc., 47-10 Austel Place
Long Island City 1, N. Y.

30-P

Please send booklet, "New Development in Retaining Rings" to:

Name _____

Title _____

Company _____

Business Address _____

City _____ Zone _____ State _____

WALDES TRUARC RETAINING RINGS ARE PROTECTED BY U. S. PATS. 2,302,949; 2,026,454; 2,410,852 AND OTHER PATS. PEND.

Veeder-Readings

will make for
BETTER READING
on your next Annual Report



*VEEDER READING is a standard term used by manufacturers to designate the performance figures which keep turning up on the faces of Veeder-Roos Counting Devices built into—or installed on—any type of production machine or process.

These Veeder Readings are *direct* readings. Operators don't have to convert or translate them... which means far fewer errors. What's more, these readings indicate any mechanical slowdown, so that it can be corrected immediately... before final assembly bogs down, and inter-departmental timing is thrown off. These readings simplify the work of inspectors. And in many other special ways—according to the nature of the job—Veeder Readings help to save time and material, to keep costs down and output up.

That's why it pays to see to it that the new production machines you buy have this built-in Veeder-Roos Control. And for the same reasons, it pays to build Veeder-Roos Devices into your own machines or products. Like to see how? You can count on Veeder-Roos engineers to help you, *now*. Write.

AM. 8:20
PM. 10:34
SECT. MO-34

	VEEDER READING	VEEDER READING
1	396	2/13 250
2	1490	2/14 912
3	2945	2/14 212
4	4173	2/15 543
5	6520	2/16 314
6	7690	2/28 912

LAST PIECE INSPECTED ☒ REJECTED ☐
DATE 2/18/47
BY

Annual Report
TO THE STOCKHOLDERS FOR THE YEAR ENDED DECEMBER 31, 1947
1947

VEEDER-ROOT INC.
HARTFORD 2, CONNECTICUT

OFFICES IN: Boston, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Montreal, Buenos Aires, Montevideo, Mexico City, in England, Veeder-Roos Ltd., Dickinson Works, 20 Purley Way, Croydon, Surrey, in Canada: Veeder-Roos of Canada, Ltd., Montreal.



BUSHINGS

PRECISION BRONZE BARS

BRONZE BEARINGS

The sleeve bearing insures —

1. Low Initial Cost
2. Low Cost of Housing Design
3. Low Cost of Installation
4. Low Cost of Maintenance

Bunting Engineers can assist you in designing for over-all economy. The Bunting Brass & Bronze Co., Toledo 9, Ohio. Branches in Principal Cities.

Bunting

For better piping Every Time get Everything from Crane

Power . . . process . . . or general service piping . . . you're off to a good start and good finish on every installation when Crane is your partner. You get everything from one source . . . valves, fittings, pipe, fabricated assemblies, and accessories . . . with the quality you want in every last item. From design to erection, the whole job is simplified.

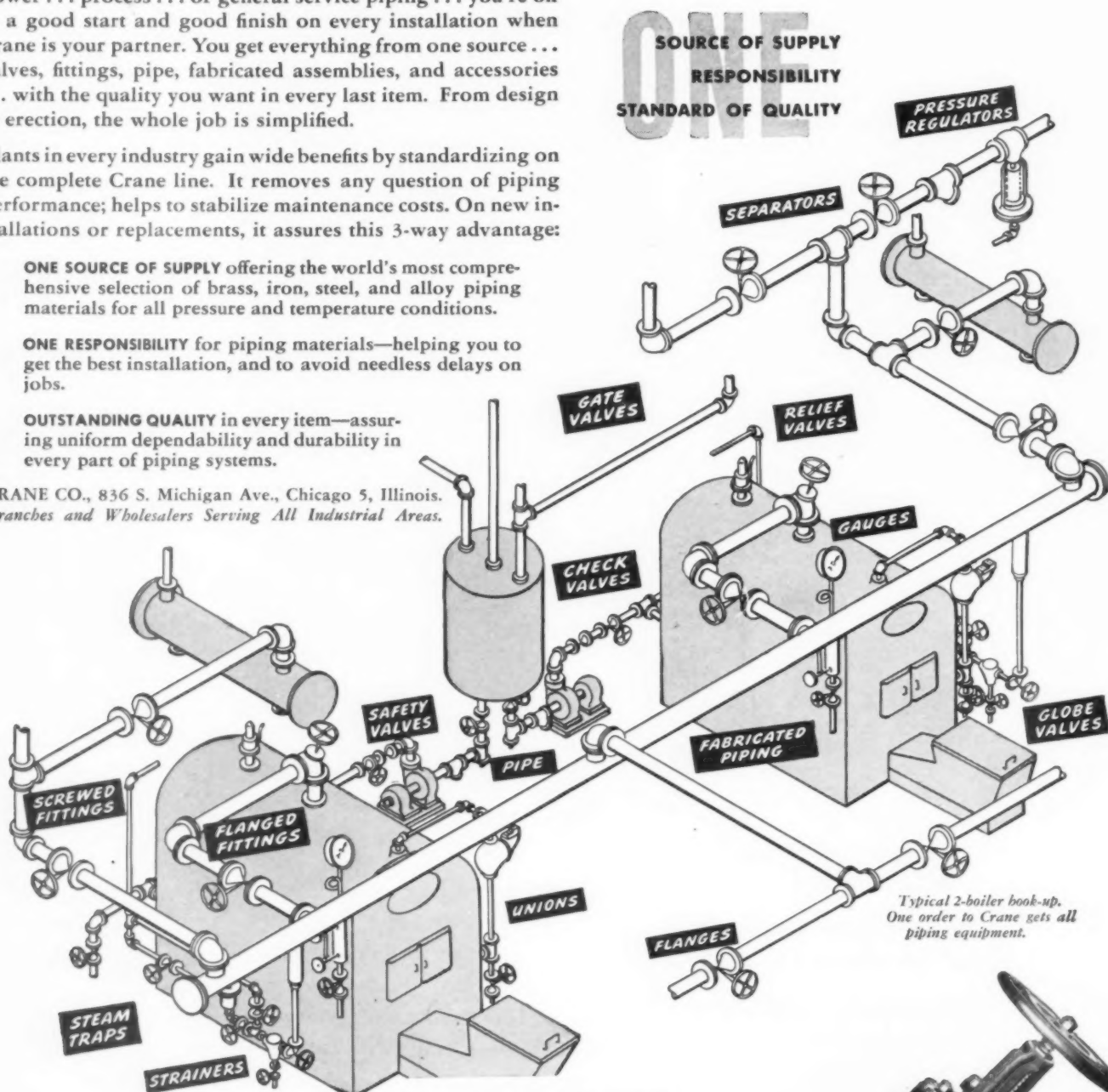
Plants in every industry gain wide benefits by standardizing on the complete Crane line. It removes any question of piping performance; helps to stabilize maintenance costs. On new installations or replacements, it assures this 3-way advantage:

ONE SOURCE OF SUPPLY offering the world's most comprehensive selection of brass, iron, steel, and alloy piping materials for all pressure and temperature conditions.

ONE RESPONSIBILITY for piping materials—helping you to get the best installation, and to avoid needless delays on jobs.

OUTSTANDING QUALITY in every item—assuring uniform dependability and durability in every part of piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Illinois.
Branches and Wholesalers Serving All Industrial Areas.



Typical 2-boiler hook-up.
One order to Crane gets all
piping equipment.

(Right) FOR SAFE BOILER OPERATION, choose automatic stop-check valves with a proved performance record. In iron or steel, Crane offers the exact type and size you need. For steam pressures up to 250 Pounds, 450 Deg. F. maximum, Crane recommends this Ferrosteel pattern, angle or straight-way, usable in two positions. Sizes up to 10 in. See your Crane Catalog.



EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
AND HEATING

CRANE

FOR EVERY PIPING SYSTEM

SCIENCE PERFECTS

THIS AMAZING NON-ALKALI INDUSTRIAL SKIN CLEANSER

NEW FORMULA SBS-11



BLACK LIGHT PROVES FORMULA SBS-11 CLEANS HANDS FASTER AND EASIER

Scientific tests of fluorescent soil made at independent laboratories under the "black light" (which makes the most deeply imbedded and ordinarily invisible particles of soil clearly visible) prove conclusively that the new, improved Formula SBS-11 removes stubborn grease and soil faster and easier than any other skin cleanser.

And no wonder! Faster . . . safer . . . milder . . . that's the new and improved Formula SBS-11. For years this amazing industrial hand cleanser has been used by 13,000,000 workers in 14,000 plants. Now, thanks to 18 months' painstaking research and experiment, it is an improved product—blended without alkali salts or phosphates. Low-titer soaps and new organic sudsers lather quickly, loosen stubborn dirt and grease and grime . . . corn meal lifts the dirt for easy rinsing . . . soothing balm is massaged into the skin as the hands are rinsed, leaving them refreshed and soothed. Protect your production by providing your employees' hands with Formula SBS-11—"The Washword of Industry." For a generous free trial sample of new, improved Formula SBS-11, sign the coupon, attach to your letterhead, and mail to SUGAR BEET PRODUCTS CO., CHEMICAL BY-PRODUCTS DIV., SAGINAW, MICHIGAN.

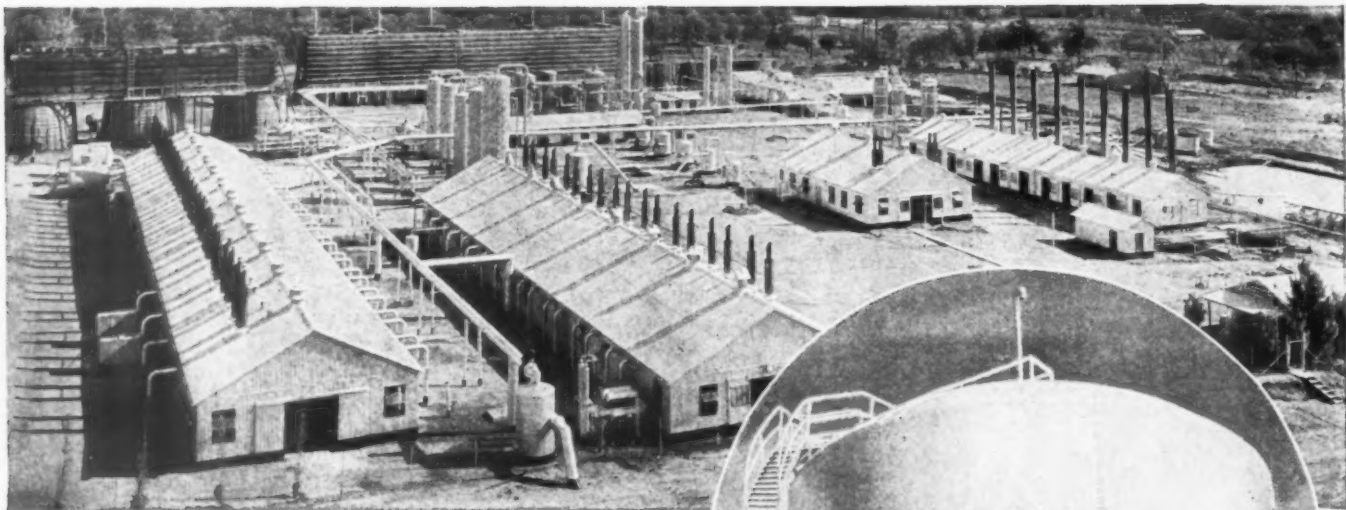


Send the trial supply of the New Formula SBS-11 to:

NAME: _____

ADDRESS: _____

CITY & STATE: _____



**Losses reduced...
Costs cut... with**

"LIQUID INSULATION"

In cost-watchful, profit-wise American industry, PERMITE Ready-Mixed Aluminum Paints are used in ever increasing volume — for two big reasons:

1. "Liquid Insulation". Extra-bright PERMITE Aluminum Paints have high heat and light reflectivity. PERMITE painted surfaces on tanks, railroad cars, trucks, buildings, etc., reflect the sun, reduce interior heat as much as 15°. Liquid losses through evaporation are minimized. Cold temperatures are maintained, perishable goods preserved.

2. Prevention of Rust and Corrosion. PERMITE Aluminum Paints are unsurpassed in resistance to moisture, smoke, fumes, acids and other destructive agents. This is due to the scientifically correct balancing of 99+% pure aluminum pigment with the Permite exclusive, specially formulated vehicle. The result on any type of surface is a paint film of perfectly overlapping metallic flakes, forming a smooth, silver-bright, armor-like protective finish.

PERMITE Aluminum Paints are also widely preferred because they are completely ready-mixed . . . saving time, labor and money. See your Distributor or write for full information.

ALUMINUM INDUSTRIES, Inc., CINCINNATI 25, OHIO

The Originator of Ready-Mixed Aluminum Paints



PERMITE *READY MIXED* ALUMINUM PAINTS

SHIELD BRAND FIRSTS

FIRST IN QUALITY

Example, a pioneer in developing the use of high speed steel for drill construction. Today's Red Shield Drills are acknowledged tops.

FIRST IN ECONOMY

Example, first to say "Send us your tough jobs", thus inviting you to prove to yourself the service economy of Shield Brand Tools.

FIRST IN UNIFORMITY

Example, completely equipped metallurgical and testing laboratory controls quality at every step from raw material to finished product.

FIRST IN PERFORMANCE

Example, America's leading mass production industries—Automotive, Aviation, Electrical, Farm Implement, Home Appliance—all regularly specify, buy and use Shield Brand Tools.

FIRST IN UTILITY

Example, initiated the packaging of individual drills in strong cardboard tubes to give added protection and convenience in handling.

WE welcome the opportunity to work with you on difficult problems as well as regular production work. No obligation or cost. Shield Brand Drills, Reamers, Taps, Dies, Milling Cutters and Special Tools are furnished by Leading Mill Supply Distributors, coast to coast. For prompt service, call your Mill Supply Distributor.



THE STANDARD TOOL CO.

CLEVELAND

Warehouses: New York • Detroit • Chicago

To save time and money in the production shop

Standardize on Standard Shield Brand Drills, Reamers,
Taps, Dies, Milling Cutters and Special Tools



IT SAVES TIME...

- In Purchasing
- In Stock Keeping
- In the Tool Crib
- In Production
- In Setting Up Work

BECAUSE

Standard Shield Brand Tools are all made in one factory—under one management to like standards of quality, uniformity and performance.

RESULT

Thus, one responsible source stands behind the performance of your metal cutting tools.

Uniform production at low cost is easier to attain with the interested cooperation thus secured—time is saved—profit margins are protected.

Leading Mill Supply Distributors from coast to coast supply these fine tools.


THE STANDARD TOOL CO.






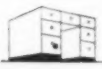
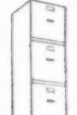



CLEVELAND

Warehouses: New York • Detroit • Chicago

IS YOUR PRODUCT LISTED HERE?

(or if it is even remotely related)



 ELECTRIC RANGES	 GAS RANGES
 DEEPFREEZE UNITS	 REFRIGERATORS
 WATER HEATERS	 OFFICE DESKS
 STEEL FILING CABINETS	 BROOMS
 WALLBOARD	 MATTRESSES

Bemis' sturdy kraft paper covers get these and many other products to market with easy handling, low shipping charges, and ample protection.

Bemis covers are slipped over the product in a jiffy to seal out dust and dirt. With this scuff-resistant cover, the product can be stored for months and be ready to go onto the display floor sparkling fresh at any time.

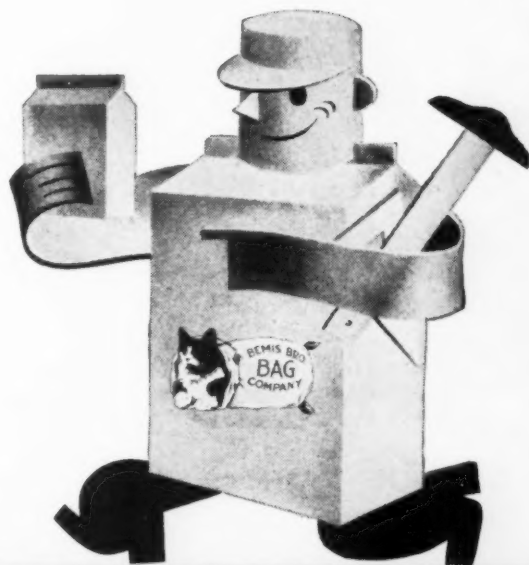
You can probably save substantial sums on shipping charges alone by talking with the Bemis Paper Bag Specialty Man.

BEMIS BRO. BAG CO.



PAPER BAG SPECIALTY DIVISION • 1064 South Vandeventer, St. Louis, Mo.

Then...see how BEMIS
can serve you with
**Good Packaging
at Low Cost**



FILL OUT AND MAIL THIS COUPON TODAY

BEMIS BRO. BAG CO., Paper Bag Specialty Div.
1064 South Vandeventer, St. Louis, Mo.

How can Bemis help cut packaging costs for our products? We manufacture _____

Name _____

Firm Name _____

Street _____

City _____ State _____

"The Arthur Morgan Company

OF ST. LOUIS, MISSOURI

• Won a New Contract!"



TECHNICAL SALES SERVICE REPORT



PROBLEM: To move and to re-erect seven surplus storage tanks from a closed U. S. Arsenal to a new location. These 21 foot high, 24 foot diameter tanks had to be moved with a minimum of dismantling and without distortion.

SOLUTION: We advised machine gas cutting the $\frac{1}{2}$ " thick tank plates into six sections with an Airco #10 Radiograph. A "track" to guide the Radiograph was cut, tack welded into position around the tank and the tank cut into three horizontal sections. These three sections were then cut in half, loaded on a truck, and moved to the new location where they were reassembled by arc welding. These "new" tanks, welded and leak-proof, proved entirely satisfactory and as a result the Arthur Morgan Company won a new contract to move an additional 35 tanks.

W. Ruffley

Airco Technical Representative

Airco's Technical Sales Division is at the call of all industry in applying Airco processes and products in the solution of their problems. If you have a metal working problem, ask to have a Technical Sales Division man call. Address: Dept. PR-6017, Air Reduction, 60 East 42nd St., New York 17, N. Y. In Texas: Magnolia Airco Gas Products Co., Houston 1, Texas.



AIR REDUCTION

Offices in All Principal Cities

TECHNICAL SALES SERVICE—ANOTHER AIRCO PLUS-VALUE FOR CUSTOMERS

HERE'S BUYING HELP

for your "Different" Insulation Problem



1. High Voltage Dilecto Cabinet Barrier
2. Vulcoid Insulator for Lighting Switch Panel
3. Dilecto Conduit Insulation Fitting
4. Dilecto Dryer Switch Insulator
5. Dilecto Terminal Block
6. Dilecto Resistance Panel
7. Dilecto Insulating Plate
8. Fibre Baffle Plate Support
9. Dilecto Insulator
10. Dilecto Reverse Switch Insulator
11. Dilecto Switch Operating Disc



When it's up to you to convert your engineers' specifications for electrical insulating materials into purchase orders, it will pay you to have at your fingertips the data on 38 different grades of 6 C-D Non-Metallics as contained in our Bulletin GF-46.

A glance at the photo and variety of applications listed will give you some idea of the many problems solved by C-D non-metallics. These versatile materials were used to supply the exact combination of electrical and mechanical properties to do their specific jobs.

There is experienced, seasoned help available to advise you on the performance, safety and economic advantages of using C-D non-metallics for electrical insulation. Get in touch with Continental-Diamond for any help you may need.

C-D NON-METALLIC PRODUCTS

DIAMOND VULCANIZED FIBRE

VULCOID—Resin Impregnated Vulcanized Fibre.

DILECTO—Thermosetting Laminated Plastics.

CELORON—A Molded Phenolic Plastic.

MICABOND—Built-up Mica Electrical Insulation.

HAVEG—Plastic Chemical Equipment, Pipe, Valves and Fittings.

STANDARD & SPECIAL FORMS

Available in Standard Sheets, Rods and Tubes; and Parts Fabricated, Formed or Molded to Specifications.

DESCRIPTIVE LITERATURE

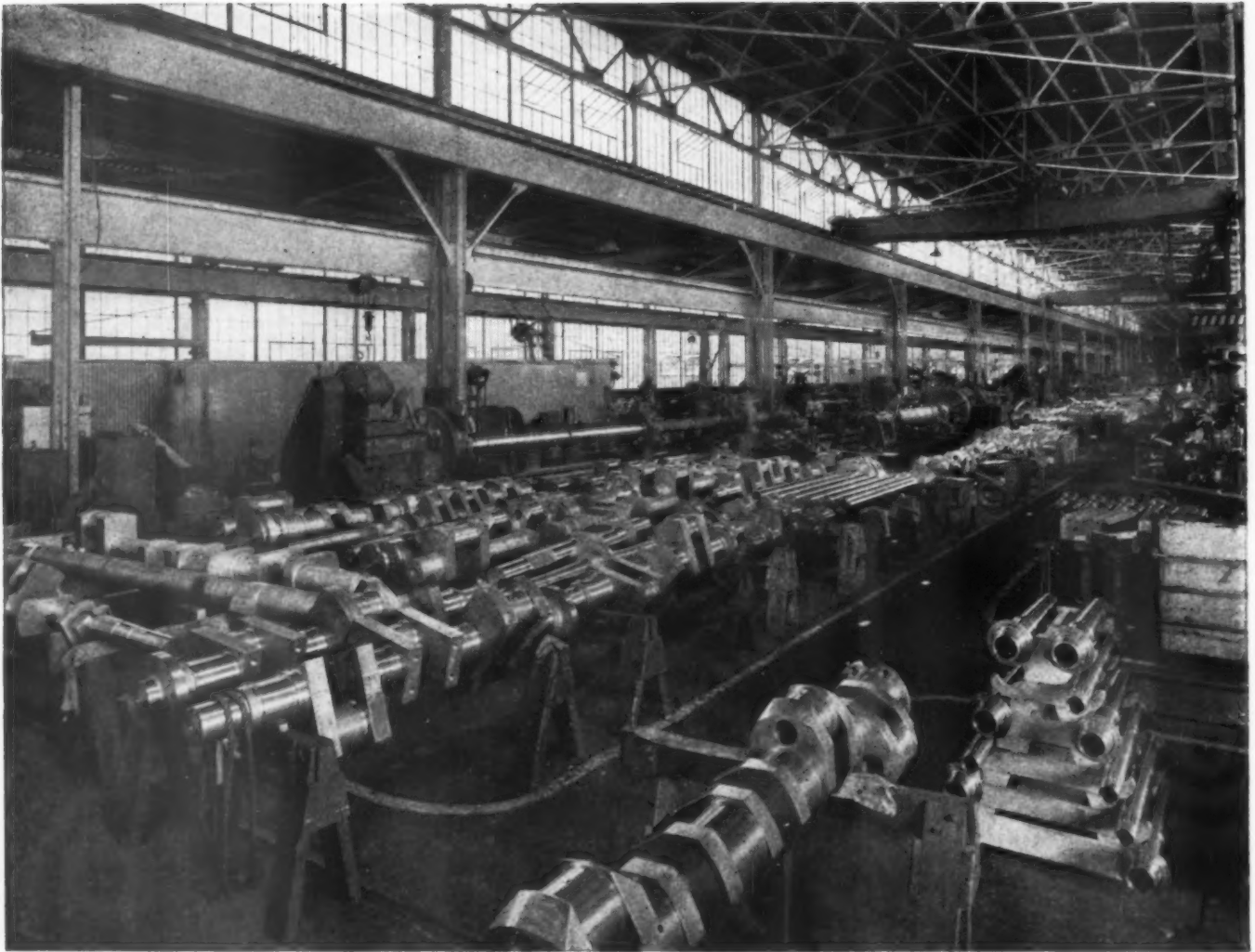
Bulletin GF gives Comprehensive Data on all C-D Products. Catalogs are also available.

DP-3-47

BRANCH OFFICES: NEW YORK 17 • CLEVELAND 14 • CHICAGO 11 • SPARTANBURG, S. C. • SALES OFFICES IN PRINCIPAL CITIES
WEST COAST REPRESENTATIVES: MARWOOD LTD., SAN FRANCISCO 3 • IN CANADA: DIAMOND STATE FIBRE CO., OF CANADA, LTD., TORONTO 8

Continental - Diamond FIBRE COMPANY

Established 1895... Manufacturers of Laminated Plastics since 1911—NEWARK 41 • DELAWARE



the Machining factor in "OK" steel forgings

● A steel forging—no matter how "clean" its steel, how expert the forgesmithing, or how careful the heat treating—is not a working piece of equipment until it is rough and finish machined. On such exacting parts as Diesel crankshafts, machinery spindles, periscope tubes and other heavy duty forgings, National Forge machining has long held high rank for the precision craftsmanship of its operators.

The National Forge machine

shops are well equipped with modern machine tools, both large and small, in which a great range of work can be performed. In addition to the production of finished machined forgings, the equipment is also available for contract machine work. For this latter field of production a well set up assembly department has been established for the completion of assembled units. Why not know how much more National Forge can do for you now?



STEEL MAKERS

FORGESMITHS

HEAT TREATERS

MACHINISTS

National Forge

AND ORDNANCE COMPANY

Irvine, Warren County, Pennsylvania

avoid fastener breakage and throw-outs . . .

Use
**CLEVELAND
FASTENERS**

made by the

**KAUFMAN DOUBLE
EXTRUSION PROCESS**



Extra strength in Cleveland Fasteners is guaranteed by this well-known method which was originated in our plant. Our manufacturing capacity is concentrated on standard cap screws—a complete range of sizes in hexagon, fillister, flat, button and socket head—high quality square head set screws, and special headed and threaded parts to your order. Write for folder explaining the Kaufman Process.



CLEVELAND
Top Quality
FASTENERS

The Cleveland Cap Screw Company

2917 EAST 79TH STREET • CLEVELAND 4, OHIO

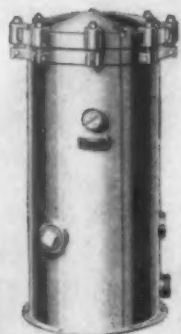
Warehouses: Chicago and Philadelphia

Ask your Jobber for Cleveland Fasteners

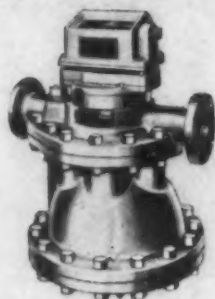
MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY

BOWSER
ESTABLISHED 1885

equipment for plants that... PROCESS LIQUIDS



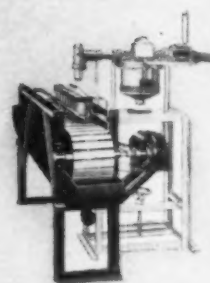
EXPENDABLE CARTRIDGE
FILTERS



ALL STAINLESS STEEL
INDUSTRIAL XACTO METERS



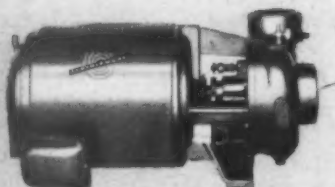
ALL BRONZE • ALL IRON
INDUSTRIAL XACTO
METERS



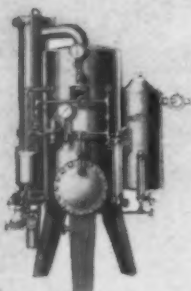
AUTOMATIC CAN
FILLING UNITS



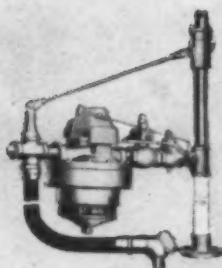
ROTARY HAND PUMPS



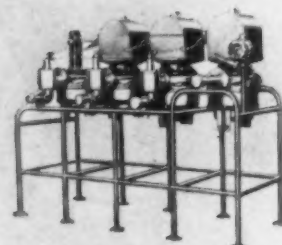
CENTRIFUGAL PUMPS



VACUUM STILLS



PREDETERMINED
QUANTITY METERS



PROPORTIONING SYSTEMS

EVERY BOWSER PRODUCT IS DESIGNED TO IMPROVE SOME INDUSTRIAL PROCESS!

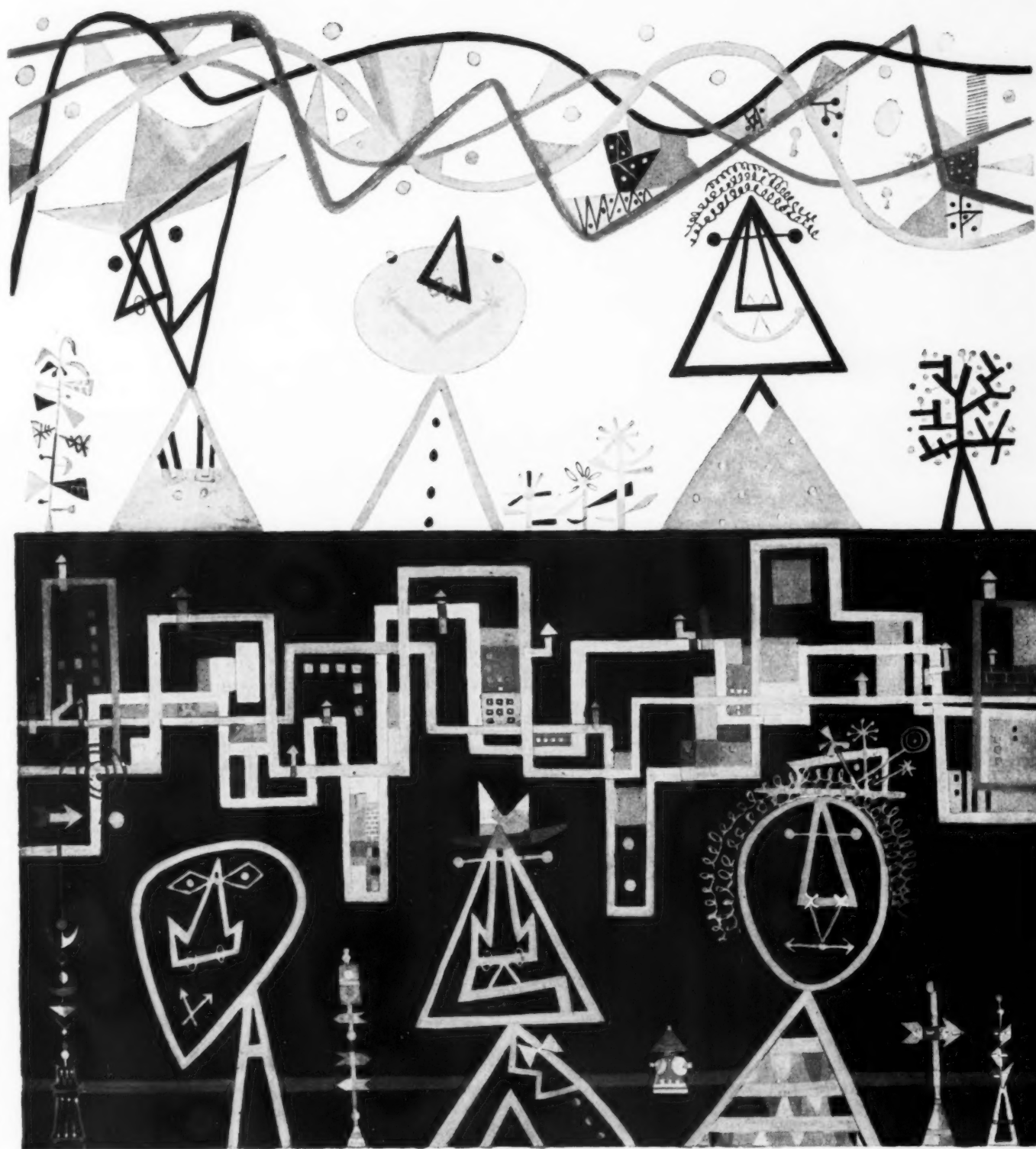
Practical knowledge of liquid processing operations in hundreds of plants is reflected in the design of every Bowser product.

Wherever liquids are measured, handled or processed, Bowser equipment saves time, labor and storage space . . . eliminates shortages . . . leads the way to improved methods at lower costs.

**SALES AND SERVICE IN ALL PRINCIPAL CITIES
BOWSER, INC.**

1334 CREIGHTON AVENUE • FORT WAYNE 2, INDIANA

Liquid Control Specialists Since 1885



Artist — Jerome Snyder, native of New York

NEW YORK—annual purchases: \$7¾ billion—mostly packaged.

CONTAINER CORPORATION OF AMERICA



Save Waste Paper

**Authentic illustration from photo of "The Lincoln Room," Wills House, a national shrine at Gettysburg. Here Lincoln finished the "Address" which was delivered the next day, November 19, 1863.*



16 Years Before the Gettysburg Address*... CHASE was manufacturing Better Bags

"Four score and seven years ago..." The Great Emancipator scans it thoughtfully, perhaps skeptically... little dreaming that one of the world's most sublime documents is being born.

During this crucial period and years before, Chase was manufacturing bags for the storage and shipment of military supplies, seed, equipment and feed—for many uses and frontiers.

And today, Chase is celebrating its Centennial—one hundred years of experience in the bag business. We believe that this is important to you because it is your assurance that whatever your bag requirements may be, you can count on Chase for improved containers for your products.

You'll find your nearby Chase salesman thoroughly informed—and glad to aid you in the solution of your packing problems.

**COTTON BAGS • TOP MILL BURLAP BAGS
SAXOLIN OPEN MESH BAGS • PRO-
TEX BAGS • MULTIWALL AND OTHER
PAPER BAGS • PROTECTIVE PAPERS**



One Hundred Years of Experience
in Making Better Bags for
Industry and Agriculture.

CHASE BAG Co.

GENERAL SALES OFFICES

307 WEST JACKSON BLVD., CHICAGO 6, ILL.

BOISE • BUFFALO • CHAGRIN FALLS, O. • CLEVELAND • CROSSETT,
ARK. • DALLAS • DENVER • DETROIT • GOSHEN, IND. • HARLINGEN,
TEXAS • HUTCHINSON, KAN. • KANSAS CITY • MEMPHIS • MIL-
WAUKEE • MINNEAPOLIS • NEW ORLEANS • NEW YORK • OKLAHOMA
CITY • ORLANDO, FLA. • PHILADELPHIA • PITTSBURGH • PORTLAND,
ORE. • REIDSVILLE, N. C. • ST. LOUIS • SALT LAKE CITY • TOLEDO

F.O.B. *Philosophy of buying*

RECONVERSION note: The ex-Assistant Attorney General, the ex-Under Secretary of the Interior, and the ex-Chief of the Office of Price Administration have entered private law practice in Washington under the firm name of Arnold, Fortas and Porter. Associated with them in this enterprise is the ex-Legal Counsel of the Securities Exchange Commission.

MERCHANDISING note: With the return of the competitive spirit in merchandising, our morning mail is bringing us an increasing number of circulars on the old "something for nothing" premium theme. Most of them are intended for dealer sales, but a few offers for the user are included. It is a long while since we have seen this plan in general use. Refreshing candor in the competitive struggle is the announcement appearing under one photograph showing five well-known brands of fountain pen ink: "Naturally we think... is the best ink, but if each were poured into a plain unlabeled bottle, the user would have a difficult time trying to tell the difference. Even a chemist would be confused.... They are all good inks." The premium makes the difference.

SYMPATHETIC note: A Cincinnati purchasing agent, deeply affected by listening to the sob stories of the salesmen who are fre-

quenting his office these days and weeping upon his shoulder to share their woes concerning shortages, costs, prices, competition, and all the other difficulties now besetting the seller, has prepared a small black-bordered card of condolence which he hands to his callers. A copy of his message is reproduced herewith. Time was, and not so very many months ago, when the woes were all on the other side of the desk, and he would have appreciated a similar expression of sympathy and understanding from the vendors.

BUYERS' market note: Eager buyers who turn to the classified advertising pages of the *New York Journal of Commerce* these days to look for offerings of materials, find that about one-third of the ads in that section are placed by customers like themselves and are headed, "Material Wanted".

NOTE on bidding technique: A man who has been on the inside of the Government's surplus property sales, and has had the opportunity to see what bids are successful in getting the goods, advises buyers to avoid the practice of bidding in "round numbers". For example, he says, if you bid 5c, 10c, 25c, or \$1.00 for an item, the chances are that you probably won't get the item. If you go to the "odd numbers" and bid 6c, 11c, 26c, or \$1.01, your chance of success will

YOUR STORY HAS TOUCHED MY HEART

Never before, have I met anyone with more troubles than you have.

Please accept this expression of my sincere sympathy.

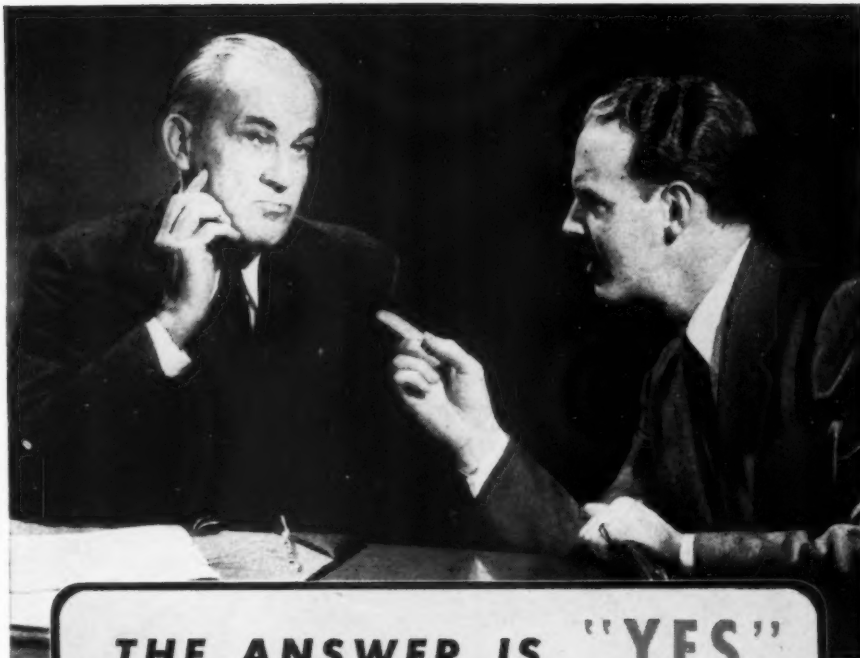
be greatly increased. But since other smart buyers are quite likely to have had the same idea, you can further enhance your probability of getting the award by splitting the fractions and bidding 6.1c, 11.1c, 26.1c, or \$1.011. There is still one more refinement that may help. A lot of buyers who have this general idea but apply it without imagination are using the half-cent basis in their bidding. So your very best bet is to edge over that figure and to offer 6.6c, 11.6c, 26.6c, or \$1.016 if you really want the goods that are in greatest demand. An analysis of a large number of transactions indicates that the bidder who uses round numbers in making his offer has less than a 40% chance of success as compared with the one who uses the fractional system. In other words, the odds are heavily in favor of the odd numbers.

CHAIN reaction: The American Retail Federation reports that retail merchants have begun a determined campaign to obtain from their suppliers goods which can be sold at lower prices. On the same day, the National Association of Wholesalers announced a three-point program aiming at lower prices, which starts by "contacting" the manufacturer on the subject. Obviously the manufacturer's first move is to call in his purchasing agent with the object of reducing material costs. The purchasing agent's problem now is to find an answer to the question: Where is the end of the line?

RECOGNITION: Recently we commented on the information contained in annual corporation reports. It is a pleasure to quote from the Belden Manufacturing Company's 1946 report, which gives credit where credit is due for maintaining the company's operations in a difficult period. Says Belden:

"A serious copper shortage early in 1946 threatened sharply reduced production, employment and profits. Rising to the emergency, the Purchasing Department operated around the clock."

Perhaps there is an explanation for this recognition of what purchasing has contributed, in the fact that Belden's president came up to that position through the purchasing department and hasn't forgotten his own buying experiences.



**THE ANSWER IS "YES"
WHEN THE FACTS SAY "NO"**

Users of Globe Endless Woven Belts for high-speed operations have found these important "noes" sum up to "yes, we want that belt":

NO VIBRATION —Globe Endless Woven Belts are constructed without joints or lap, eliminating all vibration.

NO SLIPPAGE —Globe Endless Woven Belts are especially treated to provide excellent friction surface. Preserves from oil, moisture and heat, too.

NO STRETCH —Globe Endless Woven Belts insure practically no stretch, yet sufficiently elastic to provide efficient tension.

NO FRAYED EDGES —Globe Endless Woven Belts are so constructed that edges remain firm and smooth.

These are qualities you want in high-speed belt performance.

**OTHER QUALITY
GLOBE BELTINGS:**

STITCHED CANVAS: For severe power transmission. Also elevating and conveying.

KANRY-TEX: The superior belting for food processors.

SOLID-WOVEN WHITE COTTON: "Tops" for light conveyor purposes.

CELLULOSE-COATED: For bakery and candy manufacturers.

They provide greater efficiency, better production, longer life and larger profits. Inquire *today* from your mill-supply house (or us direct) about the superiority of Globe Endless Woven Belts.

**GLOBE WOVEN
BELTING CO.**

1398 Clinton St.

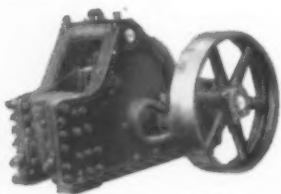
Buffalo 6, N. Y.



STURTEVANT Rotary Fine Crushers

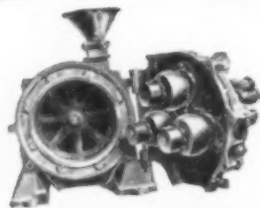
Provide Granular Products Without Excessive Dust

These fast, highly efficient crushers are designed to crush or granulate soft and moderately hard substances to fine even sizes without large amount of dust. They effectively handle materials up to and including the hardness of the softer limestone or cement clinker. The fineness of product is regulated by a hand-wheel. They produce a dependable quality of output from one inch to a quarter inch. Capacity ranges are available from one to 30 tons per hour depending on size of machine. Open door accessibility allows entire crushing area to be exposed for quick, easy cleaning. Write for information.



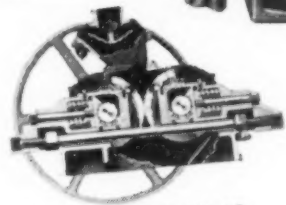
JAW CRUSHERS

for coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.



RING-ROLL MILLS

for medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open door accessibility. No scrapers, plows, pushers, or shields.



CRUSHING ROLLS

for granulation, coarse or fine, hard or soft materials. Precision and automatic adjustments. Crushing shocks balanced. For dry or wet reduction. Sizes 8x5 to 38x20. Roller or Plain bearings. The standard for abrasives.

STURTEVANT MILL COMPANY

107 Clayton Street, Boston 22, Mass.

Designers and Manufacturers of

CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS • ELEVATORS • LABORATORY EQUIPMENT • MECHANICAL DENS AND EXCAVATORS • MIXERS

● ENGINEERED AND MOLDED AT NO. 1 PLASTICS AVENUE



PROBLEM—
*DESIGN AND MOLD PLASTICS
 CAMERA. MAINTAIN CLOSE
 TOLERANCES TO ASSURE
 SNUG-FITTING PARTS AND
 HIGH OPTICAL QUALITY.*

Plastics make this camera click

● This Beacon camera makes a good picture—whether sitting for its own portrait or in the hands of a photographer. And it's focused on plastics. General Electric, at No. 1 Plastics Avenue, designed and molded the unit's four major parts for Whitehouse Products, Inc. of Brooklyn, New York.

Smart-appearing, compact, and light in weight, it's a camera that really clicks with the customers.

Do plastics fit into your picture? G. E.'s complete plastics service is equipped to design, engineer, and mold

plastics to meet individual requirements. The results very often include short cuts in production or finishing that save money . . . new beauty or utility for products that can mean increased sales.

When you think of plastics, think of General Electric—the world's largest manufacturer of finished plastics products. *We'll be glad to send you, without obligation, the interesting illustrated booklet called, "What Are Plastics?"* Just write Plastics Division, Chemical Department, General Electric Company, 1 Plastics Avenue, Pittsfield, Mass.

G-E Complete Service — Everything in Plastics

BACKED BY 53 YEARS OF EXPERIENCE. We've been designing and manufacturing plastics products ever since 1894. G-E research works continually to develop new materials, new processes, new applications.

NO. 1 PLASTICS AVENUE—complete plastics service—engineering, design and mold-making. Our own industrial designers and engineers, working together, create plastics parts that are both scientifically sound and good-looking. Our own toolrooms are manned by skilled craftsmen—average precision mold experience, 12 years.

ALL TYPES OF PLASTICS. Facilities for compression, injection, transfer and cold molding . . . for both high and low pressure laminating . . . for fabricating. And G-E Quality Control—a byword in industry—means as many as 160 inspections and analyses for a single plastics part.

GENERAL  ELECTRIC

CD47-A23

GENERAL ELECTRIC PLASTICS FACTORIES ARE LOCATED IN FORT WAYNE, IND., COSHOCTON, OHIO, MERIDEN, CONN., SCRANTON, PA., TAUNTON AND PITTSFIELD, MASS.





YES!

RUBBER MATS

can be successfully bonded to

PAINTED METAL

with **MULTI-LOK^{*}**
A D H E S I V E

Address: 270 Madison Ave., New York 16; 3641
So. Washtenaw Ave., Chicago 32; 735 Battery
St., San Francisco 11; and other principal cities. In
Canada: Meredith, Simmons & Co., Ltd., Toronto.
In England: National Adhesives, Ltd., Slough.

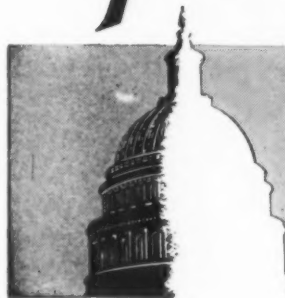
National
ADHESIVES

MULTI-LOK is a synthetic rubber base adhesive. It will bond an exceedingly wide range of diverse materials and surfaces — including many that have never been bonded before. Will MULTI-LOK bond all things to all things? Certainly not! No one adhesive will. MULTI-LOK is new. We're extending its use slowly. We're working out each application with laboratory attention to all details. We're ready to match our time with yours in solving your particular problem.

(*Reg. applied for)

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

Purchasing Previews



A Washington Report for Purchasing Agents

June 2, 1947

GOVERNMENT PLANNING SEEKS TO BY-PASS RECESSION . . .

Current enigma is the question of how to correlate the Government demand that prices be reduced with the simultaneous granting of substantial wage increases.

Only possible solution is substantial increase in rate of production. Government economists realize this, and will seek to increase productivity in industry.

Outlook is not for any sharp deflation of prices under any circumstances. If the Government planning goes haywire—if the timing is bad, there could be serious unemployment, with consequent falling off of demand for certain lines of luxury and household goods.

What is now hoped for is that the wage increases which are being granted will compensate for higher living costs—that the drive to reduce prices will serve to cut down some of the margins in wholesale and retail business, and in some of the speculative prices where commodities are out beyond the general price line.

These three adjustments, according to the Government economic strategists, could take the nation through this year's business cycle at a record economic level.

For next year, they foresee the necessity of further adjustment, but largely in the field of additional relaxation of consumer credit restrictions and reduction in taxes. Net effect of both these expedients would be to increase purchasing power.

Such a time-table for this year and next obviously has political as well as economic significance. The timing on tax reduction incorporates a highly persuasive factor in vote-getting.

Strategy of the Administration is to pull its economic chestnuts out of the fire one by one, with the idea that if adjustments can be finely meshed, there will be no recession.

INVENTORY ACCUMULATION STEADIES TO MODERATE PACE . . .

Trend in accumulation of inventory is being watched closely as a vital index of economic development. Since initial warnings some six months ago that the rate of inventory accumulation was building up fast, a more cautious approach by buyers has been evident.

There does not appear to be any speculative hoarding of inventory, and the increase in valuation of inventory holdings during the first part of this year was largely traceable to increased prices.

The rate of inventory accumulation in the non-durable goods field continued at a high level until it appeared that production and consumer demand had begun to balance. At that point, inventories in the non-durable goods industries started to decline.

The leveling off process insofar as inventories are concerned begins first at the purchased material stage, then is reflected in the rate of accumulation of goods in process, and finally is noted in the inventories of finished goods.

While alarm was expressed in many quarters earlier this year that the accumulations of inventories would start to glut markets when the rate of sales dropped from their peak levels, there is considerable opinion now to the effect that the accumulation of inventory in industry has been fairly moderate—and would not lead to distressed selling at some later date.

NEW PLANT AND EQUIPMENT EXPENDITURES LEVELING OFF . . .

Dollar expenditure for new plant and equipment this year is expected to be higher than last year, but the peak in spending for modernization has been passed.

Report by the Department of Commerce and the Securities Exchange Commission states that while there has been a steady increase in expenditures on new plant and equipment since the beginning of 1945, the peak seems to have been reached in the fourth quarter of 1946.

Business anticipations indicate a leveling off of expenditures during 1947, with estimated outlays in the last half amounting to \$6.9 billion compared with \$7 billion in both the first half of 1947 and the last half of 1946. If the anticipated expenditures for this year eventuate, they will be 15% above expenditures last year. They would be about 70% above the amounts expended in 1941, and more than 50% higher than in 1929, the two prewar highs. Adjusting for the substantial price increases, however, expenditures in 1947 would probably be under those in 1946, although higher than in 1941 or 1929.

Planned expenditures by manufacturing companies for 1947 are estimated at \$6.2 billion, not quite half the total for all industry. Manufacturing companies anticipate a gradual decline in expenditures during 1947. They expect to spend \$3 billion in the last half of 1947, compared to \$3.2 billion in the first half of this year, and \$3.4 billion in the last half of 1946.

Railroads and electric and gas utilities, on the other hand, expect continued increases in their capital outlays during 1947. Commercial and most miscellaneous companies anticipate small declines during 1947, while mining companies expect to spend at about the same rate as in the last half of 1946.

CONSUMER SAVINGS-CREDIT TRENDS . . .

Rate of saving by individuals is dropping substantially, as consumers for the first time since the war are able to buy a considerable quantity of goods—concurrent with disappearance of wartime pressures to save. Increase in price of staples adds another factor that tends to decrease the rate of saving and to dissipate the savings accumulated during the war period.

There was a substantial increase in short-term consumer credit as represented by charge accounts and single payment loans. The volume of this short-term credit far exceeded the 1941 mark.

Total consumer credit was far below prewar, due largely to the fact that installment buying has not reached its full swing. This, in turn, can be explained by the fact that the durable goods, which are purchased in large degree through installment financing, have been relatively scarce—while the non-durable goods, which are purchased on charge accounts, were in heavy volume.

Plausible deduction from these trends is that when durable goods become available in a volume to meet current demand, the prewar relationship of credit to income will be restored.

Saves 750 lbs. dunnage per car

Water heater company cuts freight costs, reduces damage claims, saves time and labor with Acme Steelstrap

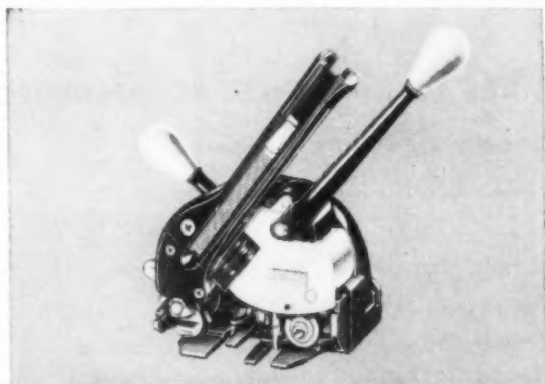
The extra expense of material and labor for bracing a car with heavy, costly lumber is a cost of distribution which can be reduced. Also, that hidden cost, "claims for damages," can be eliminated.

The Fowler Manufacturing Co. of Oregon asked Acme shipping specialists if Acme Unit-Load Band might be an answer to their water heater shipping problems. It was. This method saves 750 lbs. of lumber dunnage per carload and has proved to be a safer method of bracing cars.

While there, the Acme experts also suggested an improved design for individual heater packages. This resulted in another 25% savings.

You are welcome to call in an Acme shipping specialist to consult with your organization on any shipping problem without obligation.

Write or send for booklet containing actual case histories of substantial savings made by Acme shipping specialists.



More savings ahead for Acme Steelstrap users—No. 3 Steelstrapper, the lightest tool made, is now available. Magazine holds 100 seals. Tensions, seals, and cuts the strap in one operation. Small base requires only 5-inch strapping surface. Two levers working in opposite directions make for better balance and easier handling.

ACME STEEL COMPANY

NEW YORK 7 ATLANTA CHICAGO 8 LOS ANGELES 11



Acme Unit-Load Band practically eliminated freight damage claims, reduced labor costs, and saved 750 lbs. of lumber dunnage per carload.



A shipping room production line is building more efficient packages with Acme Steelstrap. This saves 25% on each water heater package.

Acme Steel Company, Dept. P-67
2838 Archer Avenue
Chicago 8, Illinois

Gentlemen:

Please send me a copy of your case history booklet, "SAVINGS IN SHIPPING."

Name.....

Company.....

Address.....

City.....State.....



ACME STEEL CO.
CHICAGO

Specify **MO-MAX** HIGH SPEED STEELS

In circular and flat forming tools, as in all other cutting tools, the toughness and hardness of MO-MAX assure better performance.



Buyer's Guide to Brands of MO-MAX

"LMW" . . . Allegheny Ludlum Steel Corporation
 "MOHICAN" . . . Atlas Steels Limited
 "BETHLEHEM HSM" . . . Bethlehem Steel Company
 "MO-CUT" . . . Brachburn Alloy Steel Corporation
 "STAR MAX" . . . Carpenter Steel Company
 "MOLITE M-1" . . . Columbia Tool Steel Company
 "REX T-MO" . . . Crucible Steel Company of America
 "DI-MOL" . . . Henry Disston & Sons, Inc.
 "MI-MO" . . . Firth-Stirling Steel Company
 "REX T-MO" . . . Halcomb Steel Company
 "MOGUL" . . . Jossop Steel Company
 "TATMO" . . . Latrobe Electric Steel Company
 "MIDMAX" . . . The Midvale Company
 "S. T. M." . . . Simonds Saw & Steel Company
 "MO-TUNG" . . . Universal-Cyclops Steel Corporation
 "B-N-2" . . . Vanadium-Alloys Steel Company
 "VUL-MO" . . . Vulcan Crucible Steel Company

Only **MO-MAX** GIVES YOU ALL THESE ADVANTAGES

1. MO-MAX has superior cutting qualities.
2. The machinability of MO-MAX is unexcelled.
3. MO-MAX is economical. Its specific gravity is about 8% less than that of 18% tungsten steel.
4. MO-MAX is available in a standardized composition; also in cobalt and high vanadium varieties for special high speed steel requirements.
5. For 14 years MO-MAX has demonstrated its superiority in all types of cutting tools.

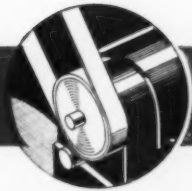
Learn all the facts! Send for your copy of the MO-MAX Handbook, sixth edition. Get the full story about this remarkable steel, including easy-to-follow instructions on heat treating.

THE CLEVELAND TWIST DRILL COMPANY

1256 East 49th Street

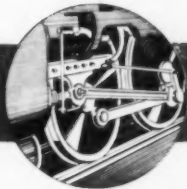
Cleveland 14, Ohio

I HOLD A SHAFT



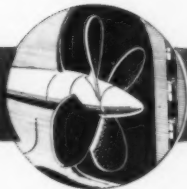
WHILE IT ROTATES

RUN SMOOTH



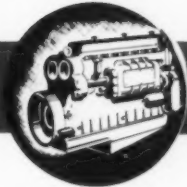
THOUGH BEARING HEAVY WEIGHTS

I HELP SHIPS SAIL



— FANS SPIN — CARS RUN —

MY TRADEMARK IS



THE LEADING ONE

what am I?

For any load at any speed, there is a member of my family for the particular service required.

You know me. I'm a bearing alloy. I'm babbit. *Federated* babbit.

Federated babbitts are engineering alloys around which you can design with confidence. Each has an analysis specifically tailored to perform best under

certain select conditions and within a definite economic range.

For example, Federated Thermodyne babbit has the ability to withstand severe service in gyratory crushers—and in high speed Diesels. Marine bearings babitted with Federated XXXX Nickel operate unimpaired even if lubrication fails momentarily.

To keep informed about bearing alloys, and their technical features, write for Federated's new booklet, "Bearing Alloys Technical Manual."

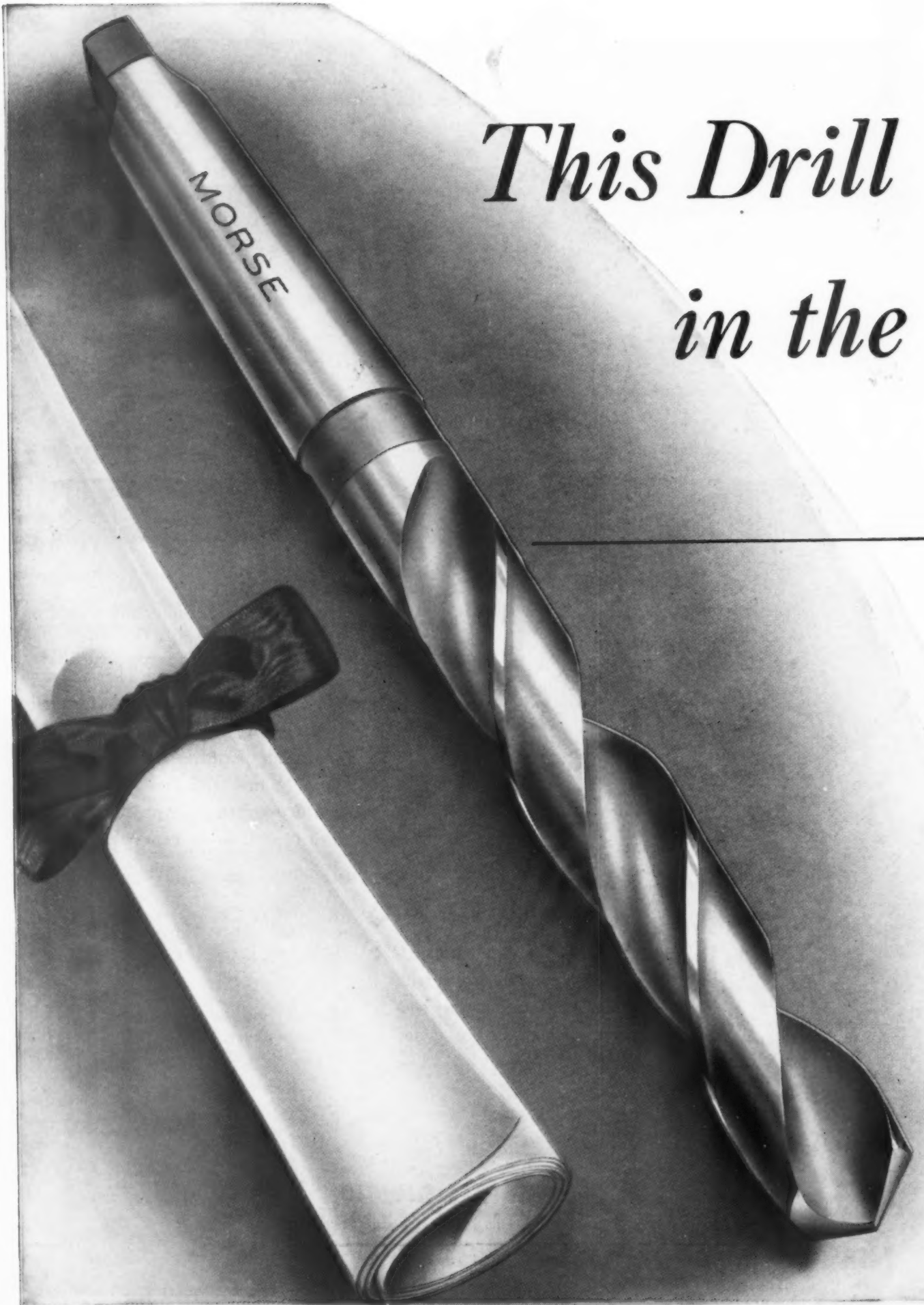
Address *Federated Metals Division, American Smelting and Refining Company 120 Broadway, New York 5, New York.*

Federated METALS DIVISION
AMERICAN SMELTING AND REFINING COMPANY

1M1C0F-216

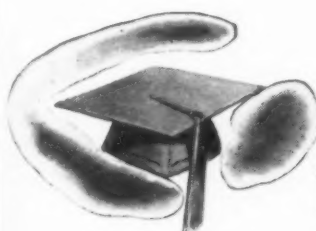


*This Drill
in the*



Graduated with Honors *"College of Hard Knocks!"*

MORSE FORGED TAPER SHANK DRILL
Forged for Toughness —
Milled and Ground to Morse Precision Standards



Here's a drill that offers a "liberal education" in serviceability and cutting efficiency. It's forged for strength and toughness, then milled and ground to the precision accuracy that's typical of all Morse tools. In addition, the *helix angle* selected for this drill is the result of long study to obtain

greatest efficiency for cutting operations. All these features *combined* provide you with an all-purpose drill that will earn its keep many times over—whether drilling gear forgings, connecting rods, crankshafts, cast iron, chrome nickel steels, etc. Buy this drill — it'll fill your bill! Your Industrial Supply Distributor can supply you.

Accuracy, Quality, Uniformity: the MORSE Code of Cutting-Tool Manufacture

MORSE TWIST DRILL
& MACHINE
COMPANY

The Original Manufacturer of Twist Drills

NEW BEDFORD, MASSACHUSETTS



New York Store: 130 Lafayette St. • Detroit Store: 2952 East Grand Blvd. • Chicago Store: 570 West Randolph St. • San Francisco Store: 1180 Folsom St.

**GO TO AN
ASBESTOS EXPERT**
*When it's too hot
to handle!*

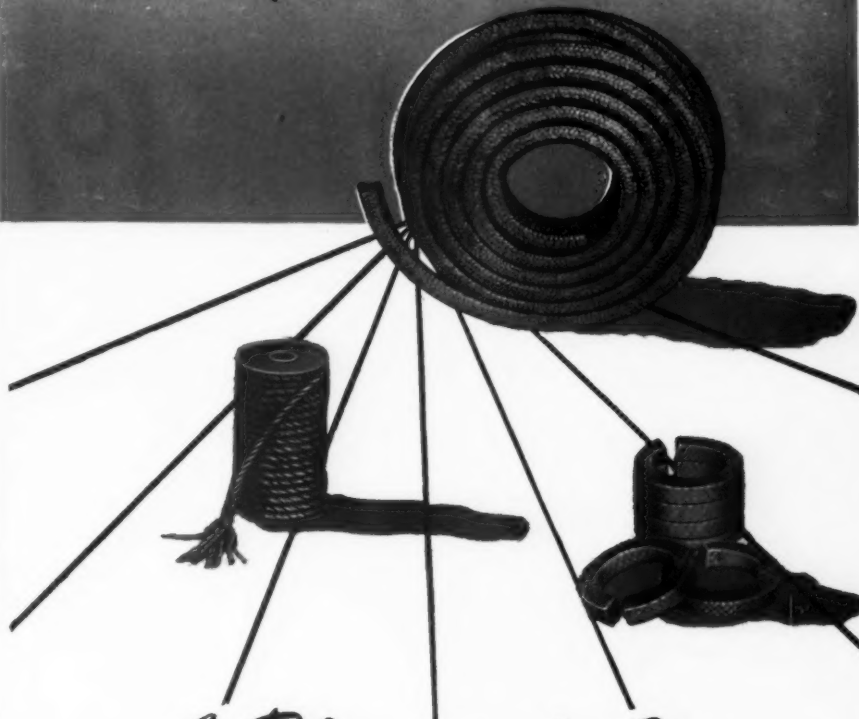
Where there is need for asbestos safety clothing, it is needless to say the best is needed . . . And you're sure it's best when it's Palmetto Asbestos.

Greene, Tweed & Co., manufacturers of famous Palmetto Asbestos products, are pleased to announce that Palmetto Asbestos Safety Clothing is again available. To meet the demands for many new types of gloves, mittens, aprons, coats and other garments, the line of standard products is now far more comprehensive than that which existed before the war.



Illustrated above are a few representative products. For literature covering the entire line or particulars on special safety clothing, write Department "S"—Greene, Tweed & Co., North Wales, Pa.

PALMETTO *Pelro*



A Place in the Sun **FOR SOLVING SOLVENTS**

When Greene, Tweed development engineers came up with formula 1100 (Palmetto Pelro Packing) "they had something" as the saying goes . . . and at last there was a packing that could *really* withstand the menacingly thin solvents such as gasoline and other petroleum distillates, alcohol, esters, ketones and lacquers in pumps, valves and similar equipment.

Canadian white asbestos strands *individually* impregnated with an exclusive lubricant is Palmetto Pelro's success secret. This wonder lubricant resists the solvent attack of chlorinated hydrocarbons, petroleum solvents and coal tar derivatives. It sizes the asbestos yarn, positively stopping capillary seepage and reducing fire hazards.

For further data on this and other Palmetto Packing achievements, send the coupon below.

GREENE, TWEED & CO.—NORTH WALES, PA.

Manufacturers of



In the United States and Canada There is a Distributor Near You.

PC 247

**SEND THE
COUPON
Today**

GREENE, TWEED & CO., North Wales, Pa.

☐ Send literature please

☐ Send a representative please

NAME _____

TITLE _____

FIRM _____

ADDRESS _____

CITY _____

STATE _____

ever spill red ink



on your building blueprints?

*t*hat frequently happens ... though blots may not show up for months, or even years. Then they are revealed in increased maintenance costs, or damage to valuable equipment.

These costs can be prevented at the blueprint stage. Many companies do it by specifying **Careystone Corrugated Asbestos-Cement Roofing and Siding** for construction of factories, foundries, warehouses and other industrial buildings. **HERE'S WHY:**



Careystone speeds construction

—It comes in large easy-to-handle sheets that can be applied 35-

square-feet at a time. That cuts labor and time expenditure to the bone ... gives you another bonus on the low cost of the material.



Careystone cuts maintenance

—It's made of Asbestos and Portland Cement. Maintenance is built-in; no painting or other protective treatment required.



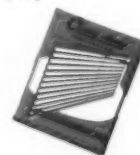
Careystone is fireproof

—It won't rot, rust or corrode. Salt air or ordinary industrial fumes don't affect

it ... it's ideal where atmospheric conditions are unusually severe.

Write for your free copy

... of the Careystone Corrugated catalog ... contains technical data on the product and its application. Describes the complete estimating and engineering service available from Carey. For a free copy write Dept. P-6.



Carey

THE PHILIP CAREY MANUFACTURING CO., CINCINNATI 15, OHIO

In Canada: The Philip Carey Co., Ltd.
1557 MacKay St., Montreal 1, P. Q.

Industrial Insulation • Rock Wool Insulation
Careyduct • Asbestos Wallboard & Sheathing
Asphalt Shingles & Roofings • Built-up Roofing
Roof Coatings & Cements • Pipeline Felt
Asphalt Tile Flooring • Waterproofing Materials
Expansion Joint • Asbestos Shingles & Siding
Corrugated Asbestos Roofing and Siding
Miami-Carey Bathroom Cabinets & Accessories

FOR LEAKPROOF, TROUBLE-FREE PIPE RUNS

Cut-a-way view of a Walseal Tee showing ring of silver brazed alloy, and completed Silbraz joint.



**Specify
Walseal*
Products**

On all types of piping jobs where Type "B" copper or red brass pipe is used, trouble can be avoided by installing Silbraz* joints — made with Walseal valves, fittings and flanges.

Threadless, patented Silbraz joints are silver brazed (not soft soldered) pipe joints that are leakproof, trouble-free — permanent . . . connections that will not creep or pull apart; that literally join with the piping system to form a "one-piece pipe line". Thus, these modern joints eliminate the need for maintenance and costly repairs — especially important where lowered operating costs are imperative.

For complete details on the modern Silbraz joint, made with Walseal products, write for a copy of Walworth Circular 84.

*Patented — Reg. U. S. Patent Office.

Make it a "one-piece pipe line" with WALSEAL

WALWORTH
valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

Recommended for

**Hot and Cold Water
Circulating Systems**

Boiler Feed Lines

Steam Return Lines

Condensate Lines

**Low and High Pressure
Air Systems**

**Lubricating Oil Circulat-
ing Systems**

Industrial Gas Piping

**Solvent and Vacuum
Piping Systems**

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

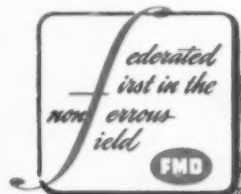
FOUR **FEDERATED** *firsts*

THAT SAVE
FOUNDRY TIME
AND TROUBLE



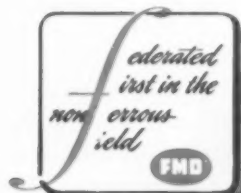
1 first in **PRODUCT VARIETY**

Brasses, bronzes, other copper alloys; deoxidizers, hardeners; alloys of aluminum, magnesium, zinc — you get them all from one source, first in the field — Federated Metals Division.



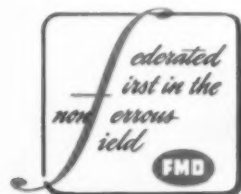
2 first in **UNIFORMITY**

Federated metals and alloys . . . made in large-capacity furnaces, with strict lab control to meet Federated's nationally known specifications . . . are uniform in the analyses you need to cast quality products.



3 first in **TECHNICAL SERVICE**

50 years' metallurgical experience, modern laboratory practice, and real foundry know-how . . . interpreted by practical service engineers to keep you informed of latest developments. And Federated's helpful literature tells what alloys to use, how to improve foundry practice.



4 first in **FACILITIES**

Federated has 11 strategically located plants and 25 sales offices — all the facilities that make it easy for you to deal with an organization in your own area. Deliveries are faster, and there is always a friendly Federated office within easy telephone radius.

When you specify non-ferrous ingot, be sure you get the best . . . with the helpful experience of the first in the field. For quality metal, and service that helps in the foundry, call or write the Federated office nearest you. *Federated Metals Division, American Smelting and Refining Company, 120 Broadway, New York 5, New York.*

JML CB F-13P

Federated

METALS DIVISION

AMERICAN SMELTING AND REFINING COMPANY



R/M TADPOLE PACKING

STYLE NO. 703

R/M tadpole tape is designed to provide a tight seal on furnace doors and in applications where heat-resistance is important, but flange pressure is not great. The packing consists of a soft core of asbestos with a wire-inserted asbestos cloth folded over the exterior. It is impregnated with a special binder, selected for its heat-resisting quality, and the typical tadpole-like cross-section is the result of the cloth extending to one side. This forms a flange for riveting or securing the gasket, yet leaves the round portion as a cushion upon which the door or cover closes.

Whatever your packing requirements, your authorized R/M distributor can supply the one R/M packing that is specially engineered to do the job.

RAYBESTOS-MANHATTAN, INC.

ASBESTOS TEXTILE & PACKING DIVISION

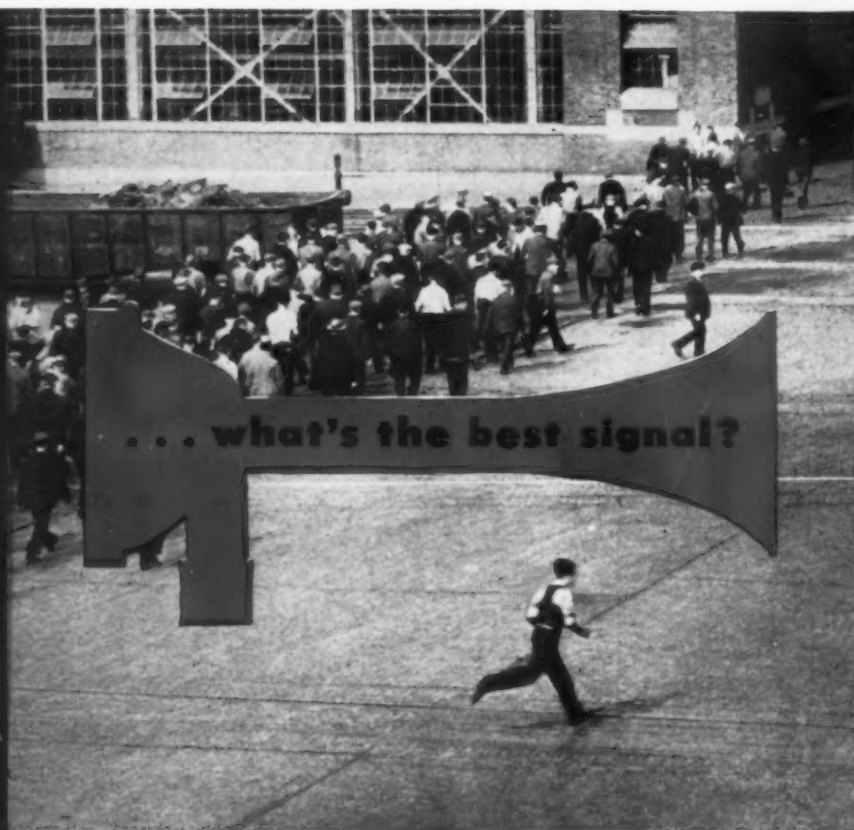
Manheim, Pa. • Bridgeport, Conn. • North Charleston, S. C. • Passaic, N. J.

It's "Packed with Satisfaction" when you use R/M



R/M

For that
calling
system
you're
planning



GraybaR can tell you—and will supply it

Whether you need a trumpet blast, a clang, buzz, howl, or whir-r-r-r — Graybar distributes the signal device that will produce it at the level required to penetrate any noise in your plant.

A Graybar Signaling Specialist can help you plan the best signaling or communication system for any requirements. We distribute industrial horns, sirens, howlers, buzzers, electric bells; annunciators; fire-alarm systems; public-address systems; Webster Teletalk intercommunication systems; Edwards Lokator code-paging or calling systems and interior telephone systems; and accessories for all signaling systems.

Our near-by office can simplify your job of getting *everything* electrical. It's still impossible for us to maintain complete stocks today — but, if you plan ahead with us now, chances are the items you want will be available when you need them. *Graybar Electric Company. Executive offices: Graybar Building, New York 17, N. Y.*

4750

Via GraybaR
...convenient source of
60,000 electrical items

IN OVER 90 PRINCIPAL CITIES

Who's a Graybar Specialist?



Every Graybar Representative, of course, is an *electrical* specialist — with the intelligence, knowledge, and experience to make sound recommendations on everyday electrical applications. But even a superman couldn't be an expert on all the items we handle! That's why, at each of our 18 key houses, there are Graybar Specialists in *lighting, power apparatus, signaling and communication, inside and outside electrical construction*. These men have intensive experience in their respective fields and are competent to handle complex technical problems. The services of both your Graybar Representative and near-by Specialists are always available to you.

PURCHASING

The National Magazine of Industrial Procurement

JUNE, 1947

Published monthly by
CONOVER-MAST MAGAZINES, INC.
Printed at: Orange, Conn.

Editorial and Executive Offices:
205 East 42nd Street, New York 17, N. Y.

Chicago Office:
333 N. Michigan Avenue, Chicago 1, Ill.

CONOVER-MAST PUBLICATIONS
PURCHASING
AVIATION MAINTENANCE
& OPERATIONS
MILL & FACTORY
PLANT PURCHASING DIRECTORY
LIQUOR STORE & DISPENSER

HARVEY CONOVER — B. P. MAST Publishers

Stuart F. Heinritz Editor
Geo. E. Henry Associate Editor
A. M. Morse, Jr. Manager
L. E. McMahon Production Manager
E. C. Arink Art Director
A. H. Dix Manager, Reader Service

A. N. Wecksler Washington Editor
National Press Building

Richard C. Grove Cleveland Manager
Leader Building, Cleveland

Forrest C. Pearson West Coast Manager
5670 Wilshire Blvd., Los Angeles 36

Advertising Representatives

Alex G. Graam New York
Ray Richards New York
T. A. Driscoll Chicago
Wayne W. Geyer Chicago



PURCHASING is an independent journal not the official organ of any association. It is the only publication of national scope devoted exclusively to the interests and problems of the purchasing executive in industry and government. Established 1915 as "The Purchasing Agent." Consolidated with "The Executive Purchaser."

VOLUME XXII. NUMBER 6, 35c per copy. \$3.00 per year, \$5.00 for 2 years. Extra postage for Canadian and foreign subscriptions \$1.00 a year. Contents are indexed weekly and annually by the Engineering Index Service. Copyright 1947 by Conover-Mast Magazines, Inc., in the U. S. A.

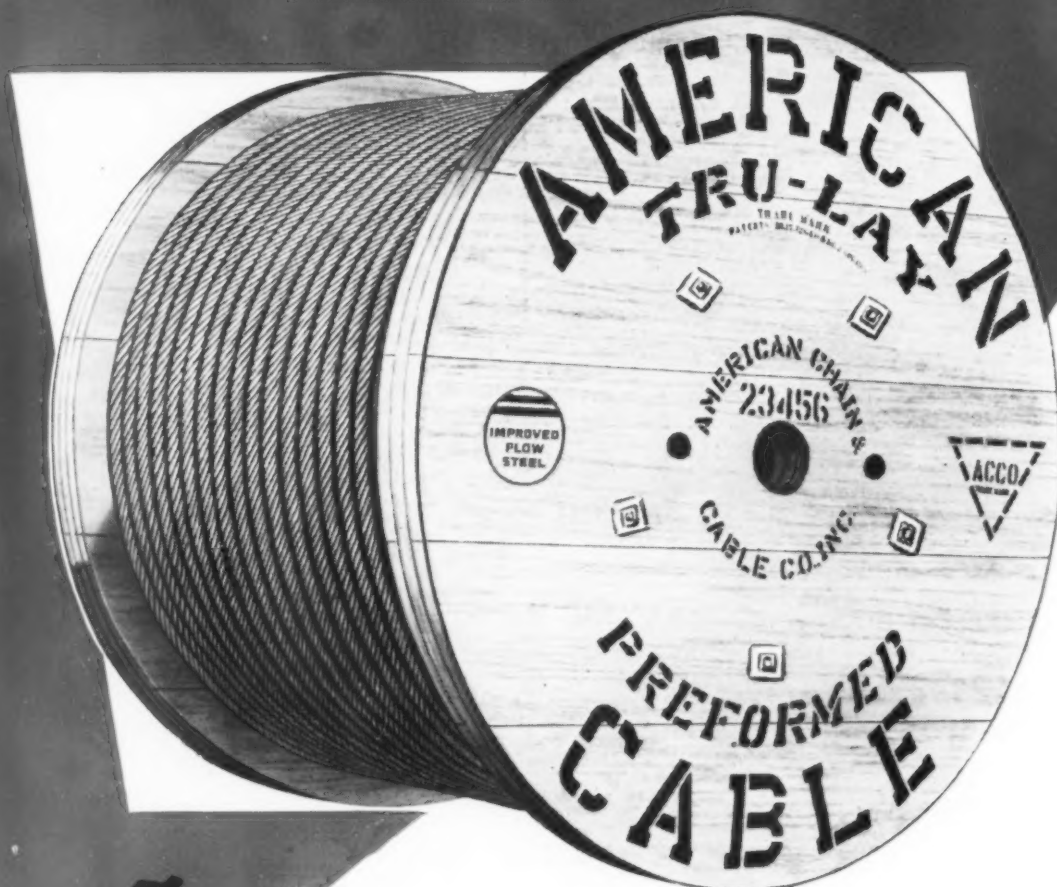
CONTENTS

	Page
Education Never Ends	83
Loyalty to Sources of Supply By H. K. LaRowe	87
Decentralized Plant Purchasing By William Goettler	89
Choosing the Right Casting Process..... By E. L. Cady	96
Are Prices Out of Line? By L. J. Paradiso	101
The Purchasing Agent and His Job By Curran Ridout	105
Motor Size Reduced One-Third	106
Purchasing Agents Exchange Ideas	108
Preventive Maintenance By H. S. Drummer	
Group Meetings By R. J. Brockman	
Inventory Control By F. S. Erjavec	
Purchasing Department Reports By L. R. Kendrick	
Stock Control for Operating Forms and Supplies By James Wilson, Jr.	111
Plant Appraisals for Adjusted Insurance Coverage By A. L. Wells	116
Educational Buyers Meet at Omaha	117
Packaging and Materials Handling By G. E. Henry	123
Product Delivery Information	131
History Is Bunk By Charles Ford	135
Buyers' and Sellers' Markets By Grey Leslie	137
The Buyer's Aesop	
The Fable of a Beautiful Business Friendship	
	By Irma Fuehr 139
Applying the Fair Labor Standards Act By Leo T. Parker	140

MONTHLY FEATURES

Ask "Purch"	14
F. O. B.	62
Purchasing Previews	67
Highlights of This Issue	85
New Products—Ideas	146
Among the Associations	212
Office Equipment and Supplies	271
Personalities in the News	296
Letters to the Editor	346
Classified Advertisements	348
Index to Advertisers	350

TRU-LAY *Preformed*



the UNIVERSAL WIRE ROPE

TRU-LAY can't help but be good wire rope. American Cable controls every process in its manufacture, starting with the blending of the alloy steels which give highest strengths. • And TRU-LAY is preformed to give it longer life and make it safer to handle. • Constant inspections of every manufacturing operation assure unsurpassed uniformity. Add to this the strength provided by the toughest of Improved Plow Steel wires and you get a rope that will stand the gaff. Ask for TRU-LAY Preformed I. P. S.

ACCO

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Easton, Pa., Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Seattle, Bridgeport, Conn.



**AMERICAN CABLE DIVISION
AMERICAN CHAIN & CABLE**

In Business for Your Safety

EDUCATION NEVER ENDS

THE JUNE commencement season has had its counterpart this year in some thirty Purchasing Agents Associations throughout the country, where organized educational programs for the membership rank among the major activities of the Association. The scope of these courses has ranged from the formal refresher course on basic principles to advanced discussion groups on special problems of today's markets. The trend has been toward the latter form. This trend will doubtless become more pronounced in the years to come as the foundations for such discussion are firmly established in the basic study. For the continuation of this program is inevitable.

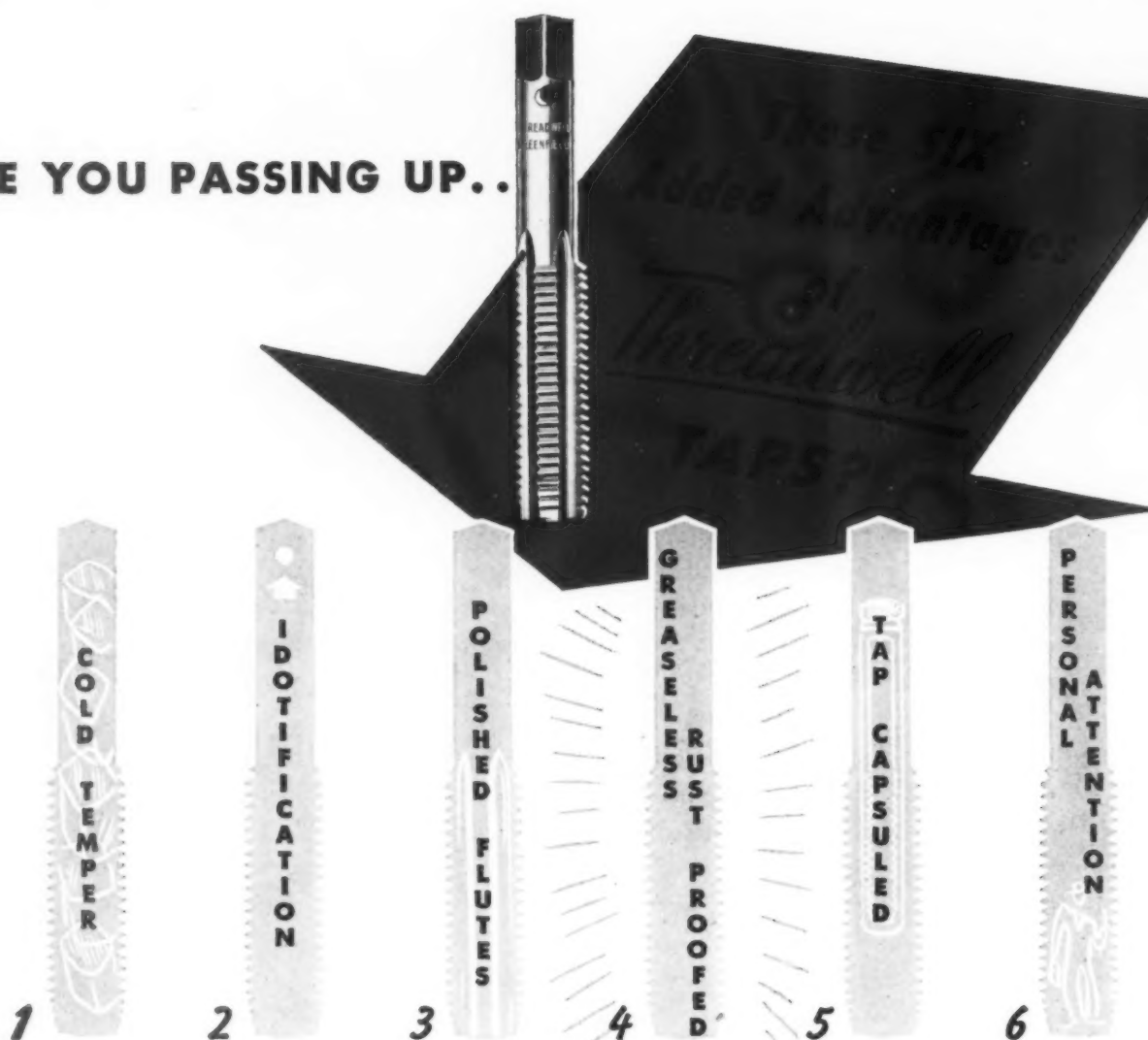
Leadership in these courses has for the most part come from within the membership. Many were reluctant to undertake such an assignment, feeling unqualified to pose as "instructors" of their fellow members, and compromised by consenting to serve as discussion leaders. In that capacity, they were able to participate freely in the sessions, and it is their unanimous testimony that for this reason, plus the responsibility of thorough preparation, they probably got more out of the course than most of the others.

Similarly, there were those who objected to "being educated" but were willing to discuss, and who found to their surprise and delight that they could still learn quite a lot about the job in which they had spent a number of years.

A good deal of thought has been expended on ways and means of evading the distasteful terms of "education" and "instruction", and those who have been closest to the movement are ready to concede now that this is a puerile and purposeless effort. Let us frankly face the facts: that purchasing is a growing profession, that it belongs to those who are willing to grow with it by learning, that essentially the reason for all Association activity is to assist in this learning process, and that education never ends for the man who would be a leader in his field.

Stuart F. Neimitz

ARE YOU PASSING UP..



Why be satisfied to string along with ordinary high speed taps that are no better in quality and accuracy and do not give you these extra performance and convenience features of Threadwell Taps.

Why?—when they cost you nothing!

Specify *Threadwell* next time and see for yourself how much more these six extras give you for your tap money.

1. **COLD-TEMPER** — deep-freeze treatment at 120° below zero to give Threadwell Taps extra hardness without brittleness.
2. **"I-dot-ification"** — red dot on the shank identifies cut thread, white dot commercial ground, blue dot precision ground.
3. **Polished Flutes** — reduce danger of chip clogging and breakage.
4. **Greaseless Rust-Proofed** — to keep them clean, dry and shining — never messy and sticky.
5. **Tap-Capsuled** — to provide perfect protection for ground threads and make it easy to select the right tap before unwrapping.
6. **Personal Attention Service** — at the factory and at your Threadwell distributor's.

*Delivery on standard items
now being made from stock*

SOLD EXCLUSIVELY BY MILL SUPPLY DISTRIBUTORS
THROUGHOUT THE UNITED STATES AND THE WORLD

THREADWELL

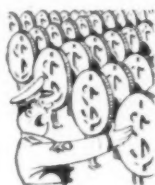
TAP AND DIE COMPANY • GREENFIELD, MASSACHUSETTS, U. S. A.

CALIFORNIA OFFICE, THREADWELL TAP & DIE CO. OF CALIF., 1322 SANTA FE AVE., LOS ANGELES 21

Threadwell
"TAPS OF DISTINCTION"

HIGHLIGHTS

A brief summary of outstanding features of timely interest and importance in this issue, to conserve the time of busy readers



Every purchasing agent today is keenly interested in the course of **Prices**, and particularly in determining what a proper price level ought to be. Unfortunately, that is largely discussed on the level of opinion rather than science. The article on page 101 presents a logical approach to this problem in measuring the relationship of prices with the prevailing levels in other fields. There is a well defined pattern of such relationships in past business experience, and the probabilities are strong that these relationships will be maintained over the long run. Mr. Paradiso's charts will give you a sound basis for finding the points of strength and weakness in the present situation.

How far should **Centralization of Purchases** go, to serve a large and scattered organization most effectively? Among the leading companies that have worked out a plan of decentralized authority without sacrificing the basic advantages of centralized policy and control, is Deere and Company. An outline of the organization and procedure in this company's buying operations is presented in the article on page 89.

Henry Ford is credited with the comment that "**History Is Bunk**". Meanwhile, more than any other man of his business generation, he made industrial history and established the pattern of the mass-production, low-cost manufacturing age. An appraisal of his policies and contributions to business thinking appears on page 135 of this issue.

Foundry Operations make up a large share of manufacturing activity, and are vital to a wide variety of industrial products. As in other fields, much technical progress has been made adapting the casting process to special requirements, and it has become a purchasing problem to select the particular process that will result in the best quality for the purpose, with maximum production and minimum cost. Ned Cady's article on page 96 provides the basic information for making this choice.



Education is Big Business today, and the educational plants of the nation are doubling their prewar capacity. Purchasing agents for colleges and universities met last month in Omaha, and their deliberations, reported on page 117, constitute an important and constructive contribution to purchasing science and information.

This month's **Guest Editorial** (page 87) deals with one of the vital questions of purchasing policy that has assumed more than usual importance in the changing conditions of doing business in the postwar era. Harold K. LaRowe, from a background of a quarter century in practical purchasing work, discusses the pros and cons of "Loyalty to Sources of Supply." His answer is "pro".

Valuation of Buildings and equipment is not altogether a matter for the accounting department and the company balance sheet. It has an important bearing on the adequacy of insurance coverage and replacement at today's higher costs. For the opinion and advice of an expert in the insurance field, turn to page 116.

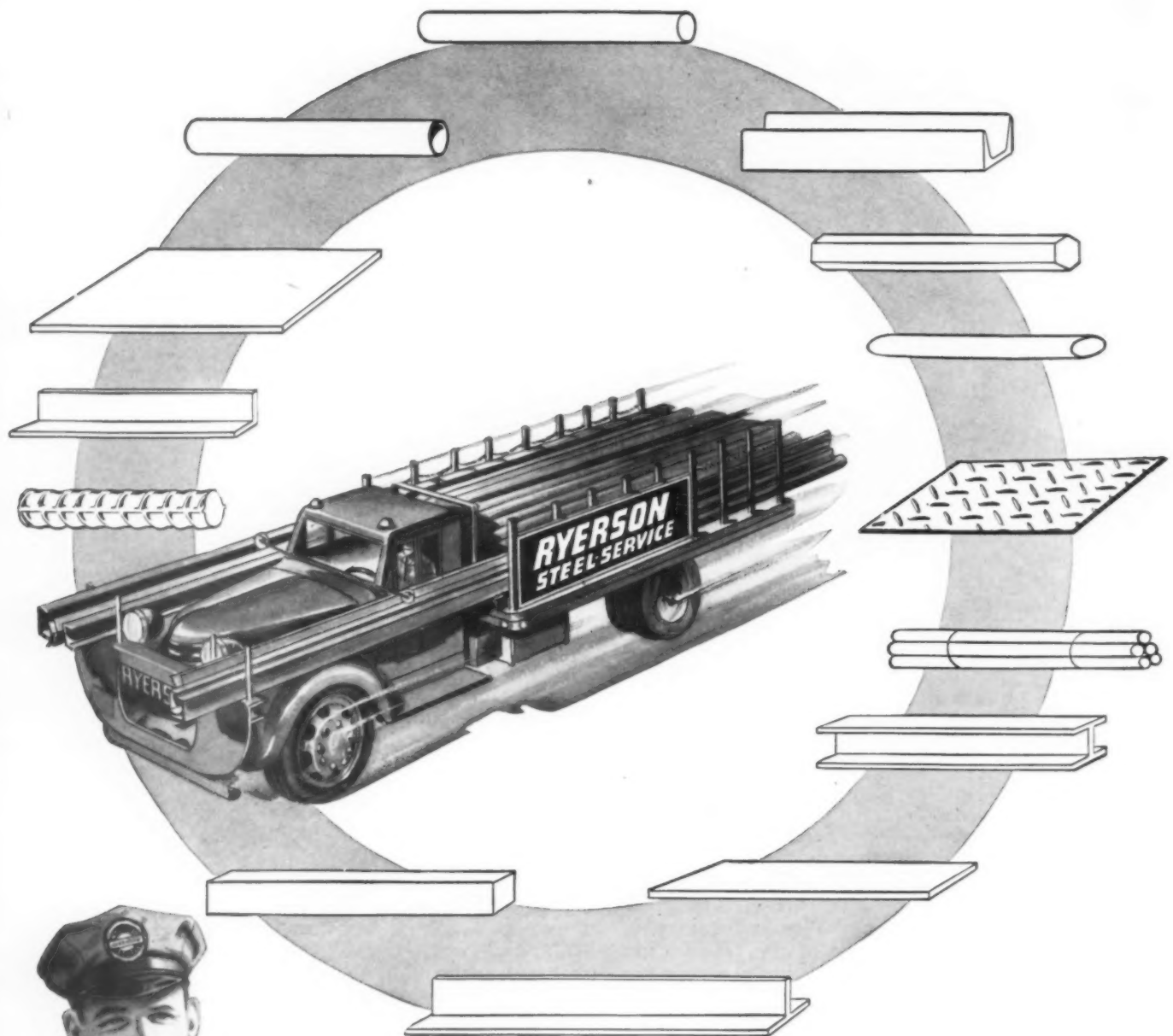
The manufacturer's job is only half done when products come off the production line. There still remains the problem of **Adequate Packaging** for shipment and the costly factor of materials handling. The annual meeting of the Packaging Engineers Association in Chicago presented the most advanced thought and modern developments in this field. For your benefit, **PURCHASING** was present at that meeting, and the results are summarized for you on page 123. Every purchasing man will find much of direct and practical interest in this report.



We also attended the **Machine Tool Forum** on your behalf, and bring the news of three important developments in the electrical field that will help you keep abreast of industrial progress. You will find this report on page 106.

Other articles of timely interest in this issue include Leo T. Parker's review of recent legal decisions on the subject of the Fair Labor Standards Act as they affect purchasing, a successful method of stock control for operating forms and supplies, papers presented at the District Conference of buyers at Minneapolis, and the monthly tabulation of product delivery schedules.

Are you making full use of these monthly departmental features compiled especially to keep you informed on recent industrial developments? A selected list of new **Trade Bulletins and Catalogs** that are yours for the asking (page 14) and the illustrated summary of **New Products & Ideas** now available for the industrial buyer (page 146) will help you to keep up-to-date on these matters.



when it comes to steel—

Our Business is YOUR Business

For more than a hundred years, each step forward in American industrial methods has been faithfully reflected in the specialization and development of Ryerson steel. With the coming of each new manufacturing technique, the scope of Ryerson stocks has been increased to include the potential requirements of the operation. And Ryerson service methods have been steadily developed to meet the ever-growing demand for speed and dependability.

During these days of critical shortages, Ryerson policy of prompt personal attention to each order remains the same. Whether your requirements are measured in pounds or tons, they receive the immediate consideration of

experienced steel men. And if the steel you need is not readily available from stock, every effort will be made to find an alternate to serve your purpose.

So contact Ryerson when the continued progress of your operation depends on steel. Whether your business consists of a one-room machine shop or an industrial empire, you are always assured of our fullest cooperation and the benefit of unequalled service facilities.

Joseph T. Ryerson & Son, Inc., Steel-Service Plants: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles.

RYERSON STEEL

Loyalty to Sources of Supply

• By H. K. LaRowe

THE continuity of the business or commercial relationship between buyer and seller has been for many years the subject of much study and critical analysis.

The word "loyalty" has certain connotations, such as faithfulness, fidelity, allegiance, but here its meaning will be confined to stability in specific relation to business activity.

I think, on the above premise, we can agree that such "loyalty" aids business progress and tends to promote a stability which in turn helps to maintain our national economy on a firmer basis. Within the breadth of necessary competition, and in accordance with the best precepts of purchasing, loyalty to sources of supply can and does play an important part in business.

Statistics show that in June 1946, the number of business firms in operation in the United States topped three and one-half million, nearly six hundred and seventy thousand more than at the low point of December 1943. This figure shows one hundred thousand more than at the prewar peak of September 1941. In manufacturing, by far the greatest advance since the low point of the war has been in the durable goods industries. Even considering the

Harold LaRowe is Division Purchasing Agent for the American Cyanamid Company, with offices at Rockefeller Center in New York City. During the years of World War II, he served as Purchasing Agent of the Chemical Construction Company, a Cyanamid subsidiary in the engineering field. In that capacity he was responsible for the administration of a purchasing organization with a staff of 160 people, including fifty buyers.

His record of service in the New York Purchasing Agents Association is unique. He became a member of that organization in 1929, being at that time Assistant Purchasing Agent of the Dairymen's League Cooperative Association. He was promptly put to work as a member of the dinner committee, and from 1929 through 1947 has an unbroken record of active participation in the Association's affairs, including membership, attendance, auditing, publicity, program, public relations, and advisory board. Along the way, he served two terms as President of the Association in 1938 and 1939, and two terms as National Director. Among his more recent assignments, he served in 1946 as General Chairman of the Purchasing Institute, an advanced study and discussion program on purchasing policy and administrative problems, and was among those in charge of the Purchasing-Sales Dinner last February when a thousand purchasing and sales executives met at the Commodore Hotel for the biggest and most successful affair of this sort ever held.

He has also played his part in National Association affairs, as Regional Chairman of the National Fuel Oil Committee, member of the Shipman Medal Award Committee, publicity committee for the 1935 convention, and Chairman of the Hotels Committee in 1942.

For relaxation, he puts fishing at the top of the list, and he is also considered something of an authority on the American Indian.



war period, it can be stated that the turnover in the business population during the past five years has been greater than at any other period during the eighteen year span for which records are available.

New and discontinued businesses also are affected by actual or anticipated levels of business activity. Of those firms whose starting year was before the year 1900, less than 1% failed in 1946; for the period starting years 1925-1929, slightly over 2% failed in 1946; 1941 starting year, the first part of the war, the percentage of failure rose to over 6% during 1946, and the number of failures increased during the war years, but there is considerable change in the record of the firms which began operations in 1946 and the first quarter of 1947. In 1946, the percentage of failure was approximately 9%. In the first quarter of 1947, however, that percentage jumped sharply to over 28% for firms who had started in 1946.

These figures are interesting in reminding us of the subject at hand and also in reminding us, painfully or otherwise, of our previous selection of sources of supply. However, the above figures do not take into consideration what may happen when inventories are reduced currently to realistic proportions and production schedules which have become waterlogged in this country are adjusted to the cold hard facts of a sound American economy. This economy we expect will be based upon free competitive enterprise, sound costing methods, and freedom from certain unfair practices which have grown up in the war period.

During the war, we purchasers had to contend with priorities and allocations as did every manufacturer and business enterprise. When it became difficult for the sellers to take care of the buyers whom they had served for many years because the latter's priority rating was inadequate, things began to happen. Buyers were embarrassed because of their inability to obtain proper amounts of required material. Likewise, the seller was embarrassed because he could not supply old customers.

At this time, there crept into discussions in the purchasing profession such new terms as "Black Book" and "Black List". In these were recorded the names of the unfortunate business concerns who had failed to serve the purchaser because of restrictions mentioned. The title of this article does not carry either directly or indirectly

any connotations which would include listing in a "Black Book". But it now seems the strategic time to throw the "Black Books" and "Black Lists" into the discard and reappraise the whole matter of selection of sources of supply with a view to determining if and why the purchaser should be loyal to sources of supply.

Some buyers would say that the price they pay for the goods would be the extent of their loyalty to any supplier. But let us go into this subject more deeply and consider thoughtfully some factors not especially unique or uncommon but just not given their proper weight when doing business every day with varying types of vendors. First, as a buyer, I think after you have made the proper selection of a source of supply, within the breadth of proper competition, each supplier or source does offer you something beyond what is reflected in the actual cost per unit purchased. Goodwill of various business enterprises, under present accepted accounting practices, is carried on the books for the sum of \$1.00, but loyalty is not purchasable on a per pound or per unit basis. It is a greater and more potent factor than that.

Beyond the prices we have paid, let us accept the following as a basis of our loyalty to a source, always keeping in mind the competitive angle:

- (a) Research performed by supplier.
- (b) Suggestions for refinement in technical processes based upon materials furnished by supplier.
- (c) Voluntary cost reductions.
- (d) Suppliers' contribution to buyer's profits.
- (e) Fair dealing and sound ethical practices.

In 1920, the national income in this country was slightly over seventy-four billion dollars, and scientific research expenditures by industry were twenty-nine and one-half million dollars. But in 1940, with a national income of almost seventy-eight billion dollars, expenditures by industry for research had risen to two hundred thirty-four million dollars. This was an increase in the twenty-year period of almost seven times. Since the war, industry continues to be more research minded and generally is committing more for research than in the period just before the war. Space is not adequate here to recite the many advantages you have gained as a purchaser because of this research carried on by your

sources of supply. In new products alone, it is formidable. No less important has been its contribution towards a reduction in your maintenance and operating expenses.

In other instances, your supplier by suggested improvements has contributed much to your profits on certain end products. This is true also in your technical processes of manufacture, where through information and data received from the supplier, refinement of the use of his product has been made.

For some time, we have not given sufficient thought to another phase of this matter. Our experience in the past few years imbedded in our minds thoroughly the application of a fluid price structure, expressed in the more common terms of escalator clauses, for a long time mostly unlimited and now partially limited. This is and has been a high cost period. There are definite reasons to believe that this situation is changing and once again a buyers' market will prevail. It is expected that prices will recede, and there have been examples where suppliers not only at this time but in other similar periods have voluntarily reduced prices for the benefit of the buyer. Credit should be given where these reductions are voluntary.

Lastly, we all like fair dealing and we respect sound ethical practices. Fair dealing frequently calls for strength of character in marketing and sales practices, and this is going to stand out as we pass into the changed phase of business. One firm's opinion of fair dealing is illustrated when the supplier who is confronted by complaints will recognize his obligations, whether written or implied.

Sound ethical practices call for breadth of vision and an examination not only of practices in the particular industry involved but beyond it, with special emphasis upon the relation of its practices to business and the general economy as a whole.

After all, I always have believed that this business of buying and selling is a mutual transaction with no unfair advantage to be sought by either, but with a wholesome mutual respect and wholehearted cooperation in all relationships.

So for the good reputation of business in general, for the strengthening of the company which employs us, and, for the enhancement of the purchasing profession, let us adopt Mr. Disraeli's words as our own: "Principle is ever my motto, and not expediency".

DECENTRALIZED PLANT PURCHASING

How Deere & Company has organized to meet current buying conditions by delegating purchasing responsibility and production planning to factory purchasing agents

Central purchasing office retains policy control, aids and coordinates operations

● **By William Goettler**



H. L. BOYLE
Vice President, Purchasing



HAYDEN PARKS
Manager, Purchasing Department

DEERE and Company of Moline, Ill., the second largest manufacturer of farm implements, by decentralizing the operations of its purchasing department, was able in the past year to obtain a stream of supplies great enough so that it was unnecessary at any time to reduce operation schedules because of material shortages. This was accomplished despite the fact that farm implement manufacturers, upon dropping of priorities, were confronted by bottlenecks in material supplies even more than many other industries.

The decentralized purchasing plan is another example of the efforts of big business to rid itself of unwieldiness in organization, and to bring responsible management nearer the assembly line. Men in each of the 14 factories in the Deere organization, many of whom had been little more than requisition clerks, were made purchasing agents with full authority and with responsibility of buying a total of 100 million dollars worth of materials.

Instead of depending merely upon resources of a few individuals in the central purchasing office, the purchasing agent in each plant added his resourcefulness in obtain-

ing scarce materials. Queries regarding availability of supplies were issued not only from the central office but from each of the factories, and a number of new sources were thus developed.

H. L. Boyle, on becoming vice-president in charge of purchasing, cut through much needless red tape and clerical detail in the central purchasing office so that it was impossible to transfer 75 employees to other departments where they were needed.

"Still purchasing records seem to be handled as efficiently as before," said Hayden Parks, purchasing department manager. "And the company at no time sacrificed price in changing from one buyer to 14 buyers!"

All necessary clerical work was transferred to branch plants where it is being handled without staff increases. The plan has proved so successful in its first year of operation that it will be retained even when a buyers' market returns.

The purchasing department at the company's main office is taking an advisory role, that serves in the dual capacity of guide and clearing house in coordinating the total purchasing program. It issues quarterly price bulletins covering all

A purchasing conference in Mr. Parks' office



JOHN DEERE DUBUQUE TRACTOR COMPANY DUBUQUE, IOWA		
DATE _____		ORIGINAL PURCHASE ORDER No. _____
TO _____		THIS NUMBER MUST APPEAR ON ALL INVOICES, PACKING SLIPS AND CORRESPONDENCE OR SHIPMENTS WILL BE REJECTED.
L _____		
PLEASE ENTER THE FOLLOWING ORDER IN ACCORDANCE WITH THE CONDITIONS AND TERMS OF YOUR ACCEPTED QUOTATION AND /OR CONTRACT DATED _____ AND IN CONFORMITY WITH CONDITIONS AND INSTRUCTIONS CONTAINED ON THIS ORDER		
QUANTITY	DESCRIPTION	PRICE
SHIP BY _____ VIA _____ TERMS _____		
F. O. B. _____ SHIPMENTS MUST BE MADE AS FOLLOWS _____		
MARK PACKAGES, CASES, ETC., WITH ABOVE PURCHASE ORDER NUMBER, SPECIAL NUMBER OF EACH PACKAGE, WEIGHT OF EACH PACKAGE, VENDOR'S NAME. THIS CONTRACT IS SUBJECT TO ALL OF THE CONDITIONS SET FORTH ON THE BACK HEREOF.		
JOHN DEERE DUBUQUE TRACTOR COMPANY		
BY _____ W. F. LUNDEEN, Purchasing Agent		
PER _____		
HEAD		

Purchase Order Form

Standard terms and conditions are printed on the reverse side

common materials used at the various factories, and provides a recommended list of suppliers, which is used as a guide in establishing sources of material.

Factory purchasing agents are required to buy from the sources listed, unless they can locate a supplier with a better product at the same or a lower price. If they do accomplish this, they promptly inform the central office so that other Deere factories can also buy from the new supplier.

The material and price bulletins become a challenge to the various purchasing agents, and they comb

suppliers to obtain better service, quality, and price.

If a factory purchasing agent finds himself unable to obtain a certain article or material, he calls upon one of the specialized buyers in the central office for assistance.

One of these purchasing agents, when a representative of PURCHASING called there, was having difficulty in obtaining delivery of a bottleneck material. He had exhausted all his resources, and had telephoned the office for information. Buyers there, concentrating on this single item, soon had the problem solved, and the information

was relayed to the factory buyer during the course of our interview.

Occasionally, too, a plant purchasing agent has difficulty negotiating a contract or agreement, or may be doubtful about some procedure. In these cases he merely calls the responsible purchasing agent in the main office for advice or aid.

Plant purchasing agents, in addition to exchanging common materials, hold meetings occasionally to discuss ideas and experience in regard to mutual problems. The company finds that cooperation in this respect lends to general efficiency.

Records at the factories are always open to inquiries from the main office, regarding price and specifications of material.

"Difficulties in changing over to the decentralized system were not great," Mr. Parks said. "Mainly our problem was to make factory purchasing agents realize that they were directly responsible for keeping their assembly lines supplied, and that all fetters had been stripped away so that they could do their job."

"However, they are demonstrating their initiative," he continued. "With each meeting they show increased evidence of taking full responsibility, and each one has proved himself capable of handling his new job."

Once excluded from meetings of the inner circle of Deere executives, the factory purchasing agents are now called into discussions that directly or indirectly involve the availability and price of materials.

Since information about material supplies formerly had to be obtained from the central purchasing office, the factory managers in many cases did not trouble to discuss operation schedules with buyers in even their own plants. The new plan has re-

John Deere Dubuque Tractor Co., Waterloo, Iowa



Van Brunt Manufacturing Co., Horicon, Wis.



DEERE & COMPANY, PURCHASING ORGANIZATION

H. L. BOYLE, Vice President, Purchasing

GENERAL PURCHASING OFFICE, Moline, Illinois

HAYDEN PARKS, Manager, Purchasing Department

R. A. SCOTT	—	Steel, Pig Iron, Scrap, and kindred products
J. E. SERSIG	—	Lumber, Pipe, and Tubing
A. G. ZIEGLERGRUBER	—	Construction and Perishable Tools
H. A. HOOK	—	Coal, Coke, Paint, Tires, Miscellaneous Items
A. R. McCUNE	—	Fasteners and Bearings
M. J. ANDERSON	—	Machinery and Equipment

sulted in greater coordination, with highly beneficial results.

"The factory purchasing agent today is made to feel that he is an important cog in the organization," Mr. Parks said. "He takes a full share in planning decisions on production schedules, major remodeling, and expansion. This makes it easier for him to shoulder responsibility involved in his new duties.

"Having full right to exercise his initiative, he at all times is delving into ways and means of working out difficult problems," he added.

Under the current plan, delay in ordering material through the central office is eliminated. Furthermore, the factory purchasing agent, subjected to the direct pressure of assembly line needs, will in turn apply greater pressure upon suppliers for delivery of urgently needed materials.

Plant purchasing agents often are able to contact suppliers who can handle partial or entire needs of one plant, but who could not fill the much larger orders of the central office, and were therefore not considered as satisfactory vendors.

Another advantage, as shown by Deere and Company experience, is that plants frequently can buy materials from manufacturers or jobbers close at hand. Local prestige of a buyer is built up in this way, and in addition to savings in transportation costs, price concessions are sometimes obtained that would not be granted to purchasers outside of a supplier's territory.

Price concessions because of quantity purchases from one supplier by various Deere and Company factories are not sacrificed under this system, however.

"The combined purchases are given the same recognition for discounts as if coming from a central office," Mr. Parks explained.

Decentralized purchasing has fa-

FACTORY PURCHASING AGENTS

<u>PLANT</u>	<u>PURCHASING AGENT</u>	<u>PRINCIPAL PRODUCT</u>
John Deere Plow Works Moline, Illinois	C. L. Ogden	Plows
John Deere Harvester Works East Moline, Illinois	E. O. S. Larson	Combines
John Deere Spreader Works East Moline, Illinois	Geo. Vander Vennet	Spreaders
John Deere Wagon Works Moline, Illinois	W. H. Blackman	Trailers
Deere & Mansur Works Moline, Illinois	P. E. DeVos	Planters
Union Malleable Iron Works East Moline, Illinois	J. P. Boaden	Malleable Castings
John Deere Tractor Company Waterloo, Iowa	P. A. Mongerson	Tractors
John Deere Dubuque Tractor Company Dubuque, Iowa	W. F. Lundeen	Tractors
Dain Manufacturing Company Ottumwa, Iowa	Kenneth Garrett	Hay Machinery
Syracuse Chilled Plow Company Syracuse, N. Y.	W. F. Manning	Plows
John Deere Welland Works Welland, Ont., Canada	J. B. Barclay	Cultivators
Killefer Manufacturing Corporation Los Angeles, Cal.	W. H. Wilson	Disc Harrows
Van Brunt Manufacturing Company Horicon, Wis.	D. N. Classen	Cultivators
Vermilion Malleable Iron Works Hoopeston, Ill.	L. R. Metz	Malleable Castings
John Deere-Lindeman Company Yakima, Wash.	Richard Edwards	Hop Pickers

Syracuse Chilled Plow Co., Syracuse, N. Y.

John Deere Harvester Works, East Moline, Ill.



OFFICE COPY		JOHN DEERE DUBUQUE TRACTOR COMPANY DUBUQUE, IOWA		2
TO 		DATE 		PURCHASE ORDER No.
PLEASE ENTER THE FOLLOWING ORDER IN ACCORDANCE WITH THE CONDITIONS AND TERMS OF YOUR ACCEPTED QUOTATION AND FOR CONTRACT DATED _____ AND IN CONFORMITY WITH CONDITIONS AND INSTRUCTIONS CONTAINED ON THIS ORDER.				
QUANTITY	DESCRIPTION	PRICE		
SHIP BY _____ VIA _____ TERMS _____				
P. O. NO. _____ SHIPMENTS MUST BE MADE AS FOLLOWS _____				
DEL. TO: _____	FOLLOW UP RECORD		ACKNOWLEDGED	
NOTIFY: _____			DELIVERY PROMISES	
REQ. NO. _____				
REQ. BY: _____				
ACCT. NO. _____				
REMARKS				

Office Copy of Purchase Order
Follow-up information is posted on the face of the order. Reverse side is ruled for a record of receipts and invoices.

cilitated handling of complaints. The plant agent no longer must take the round-about route of calling the central office in order to straighten out a complaint. He himself calls the supplier to obtain inspection of material.

Finally, since removal of much routine work from the central office, key men have more time to devote to major problems. They are ready at almost any time to devote full attention to some special difficulty.

They have more time, also, to become acquainted with plant requirements and factory personnel, as well as with suppliers of material.

"The plan has proved beneficial in the past year which, as any purchasing agent knows, will go down in history as the toughest year of all, so far as obtaining materials is concerned," Mr. Parks said. "And when we come to a buyers' market," he continued, "this plan of having more purchasing agents scouting the field will enable us to obtain the lowest possible prices. We will still have as much control of procurement at low prices as under the previous system."

Although many changes remain to be made before complete satisfaction is obtained, the essential tasks of the change-over from the

centralized to the decentralized system, required only a few months.

One problem that remains is getting suppliers to recognize that general purchasing is no longer done at the Moline office. Many salesmen still contact the head purchasing department, but they are directed to the various points where the actual buying is now being done.

The only exception to the decentralized plan is the purchase of materials for major plant expansion programs, and of lumber. This is because the engineering departments which develop material specifications and draw designs, are centralized at Moline. Many special features must be considered in purchase of building material, and substitutions frequently made. Numerous engineering changes, also, are always necessary when construction is started. Purchasing agents, therefore, must be close at hand.

Each plant has uniform shop and material requisitions, but records of purchases, and methods of handling orders and invoices vary among the factories. As these variations may be only in size and wording of records, further standardization has been discussed. However, no action up to this time has been taken, and it is assumed that differences in manufactured products, which range from farm wagon boxes to industrial power units, will limit complete standardization.

Deere and Company also maintains a purchasing office in Chicago, where factory agents may hold meetings or confer with salesmen. Because of rail and air transportation difficulties, this is a more convenient meeting place than Moline.

Several of the Deere and Company factories do not have production planning departments. Functions which ordinarily are handled by planning departments in these plants, are the responsibility of purchasing agents. The new John

John Deere Welland Works, Welland, Ontario



Deere & Mansur Works, Moline, Ill.



FACTORY PURCHASING AGENTS



C. L. Ogden
John Deere Plow Works



E. O. S. Larson
John Deere Harvester Works



George Vander Vennet
John Deere Spreader Works



W. H. Blackman
John Deere Wagon Works



P. E. DeVos
Deere & Mansur Works



J. P. Boaden
Union Malleable Iron Works



P. A. Mongerson
John Deere Tractor Company



W. F. Lundeen
John Deere Dubuque Tractor Company



Kenneth Garrett
Dain Manufacturing Company



W. F. Manning
Syracuse Chilled Plow Company



J. B. Barclay
John Deere Welland Works



W. H. Wilson
Killefer Manufacturing Corporation

John Deere Wagon Works, Moline, Ill.



John Deere Plow Works, Moline, Ill.



11492 CONNECTING ROD BEARING				
QUOTATION BY	PRICE	QTY OF	F.O.B.	TERMS
ALAN BEARING CO.	14.28¢	5000	Detroit	14-10
"	14.11¢	7500	"	"
"	13.75¢	10000	"	"
"	13.10¢	15000	"	"
6 SMITH BRONZE CORP	15.50¢	5000	Pittsburgh	1/24-10
"	14.20¢	7500	"	"
"	13.60¢	10000	"	"
"	13.20¢	15000	"	"
16 PERFECTION BEARINGS INC	14.02¢	5000	Chicago	14-10
"	13.80¢	7500	"	"
"	13.40¢	10000	"	"
"	12.00¢	15000	"	"

Price Quotation Card

Deere Dubuque Tractor Company plant, where assembly lines are now getting into production, is one where production planning is a function of the purchasing department.

Managers of the plant, for example, release an order for the building of 6,000 "Model M" tractors in a certain quarter. Ordinarily a planning department would break down the order into units, and relay it to the purchasing department. However, at the Deere and Company plants the order goes directly to the purchasing agent, who consults the control books where all units of this particular tractor are listed. Numbers and descriptions of each part needed for a completed tractor are given here.

"The advantage of having duties of planning and inventory control

included in those of the purchasing department, is that responsibility is centered," said Walter F. Lundeen, head purchasing agent in the Dubuque plant. "If a needed unit or material does not arrive in time for requirements, due to errors or other causes, the responsibility rests with the purchasing department. Delay has largely been eliminated."

The material requirements are posted on unit part cards, and requisitions prepared with full description of a unit and designation of the number of units desired. The buyer himself checks price with quotation cards.

One copy of the purchase order is kept in the purchase order book for use by the "follow up" man who checks delivery from suppliers. This purchase order copy contains information of receipts which are posted daily from reports sent by the receiving department.

This procedure enables the "follow up" man to know exactly the quantity of material, and date that it is received. Invoices are also posted against the purchase order copy, and prices checked against the order. As invoices generally are received prior to shipment of materials, these give advance notice of arrival.

The invoices and receiving checks are passed on to the stock record clerk, who makes the postings. While stock records are not exactly perpetual inventories, the purchasing agent with a little addition and subtraction can at all times determine the amount of material on hand, which is not yet incorporated in a product or earmarked for current use.

Numbers of the unit part cards are placed at the right on lines

slanted at a 45-degree angle to facilitate location in files. Below are seven spaces for names of vendors. Space is allowed also for the model number of equipment on which a particular unit is used, and the number of units required for each assembly.

Thus the purchasing agent, without aid of a planning department, upon simple multiplications knows the number of units to order for production schedules in any month.

First in the record columns are listed the requirements. Space is provided for the order number, the month, the assembly number, and the quantity ordered. Listed also is cumulative total units ordered.

Following are receipts and unit costs. Information here includes the date, the requisition number, the purchase order number, the vendor number, the invoice date, price, quantity received, and the cumulative total.

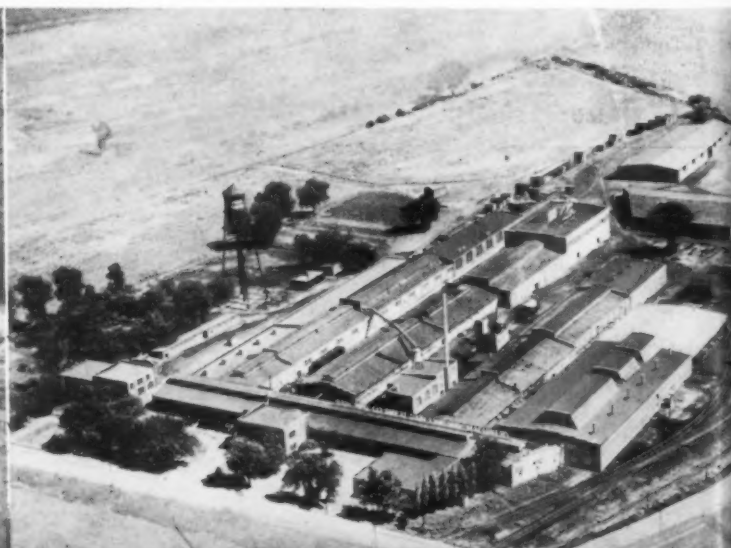
Finally are the listings headed "scrap" for units found defective or which are spoiled in manufacture. These must be deducted from the cumulative total for balancing of stock records. Thus additions for the scrapped units may be made in the next month's purchase orders.

Price quotation cards carry the names of vendors, the date, the price and size of lots, the F.O.B. point, and the terms.

The Dubuque plant is now producing power units for the "No. 12-A" combine, and assembly lines soon will turn out the "Model M" tractor. The latter is a small four-wheeled tractor in demand for small farms, for truck gardens, and as a second tractor supplementing large machines.

John Deere Tractor Co., Waterloo, Iowa

Dain Manufacturing Co., Ottumwa, Iowa



Raw Material Purchase Record

VENDOR		1 2 3 4 5 6 7 8								ACCT NO		
1	USED ON											
2	PART NO.											
3	CUTTING SIZE											
4	QUANT. USED											
5	USED PER 100											
6	REQ'D TIME											
WEIGHT BAR-SHEET												
USED ON												
PART NO.												
CUTTING SIZE												
QUANT. USED												
USED PER 100												
REQ'D TIME												
REQUIREMENT												
ORDER NO.	ASSY NO.	QUANT.										
1	2	3										
4	5	6										
7	8	9										
NAME												
MATERIAL												
CUTTING SIZE												
BAR SHEET												
MAKES												
PC												
CODE NO.												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												
91												
92												
93												
94												
95												
96												
97												
98												
99												
100												
101												
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												
121												
122												
123												
124												
125												
126												
127												
128												
129												
130												
131												
132												
133												
134												
135												
136												
137												
138												
139												
140												
141												
142												
143												
144												
145												
146												
147												
148												
149												
150												
151												
152												
153												
154												
155												
156												
157												
158												
159												
160												
161												
162												
163												
164												
165												
166												
167												
168												
169												
170												
171												
172												
173												
174												
175												
176												
177												
178												
179												
180												
181												
182												
183												
184												
185												
186												
187												
188												
189												
190												
191												
192												
193												
194												
195												
196												
197												
198												
199												
200												
201												
202												
203												
204												
205												
206												
207												
208												
209												
210												
211												
212												
213												
214												
215												
216												
217												
218												
219												
220												
221												
222												
223												
224												
225												
226												
227												
228												
229												
230												
231												
232												
233												
234												
235												
236												
237												
238												
239												
240												
241												
242												
243												
244												
245												
246												
247												
248												
249												
250												
251												
252												
253												
254												
255												
256												
257												
258												
259												
260												
261												
262												
263												
264												
265												
266												
267												
268												
269												
270												
271												
272												
273												
274												
275												
276												
277												
278												
279												
280												
281												
282												
283												
284												
285												
286												
287												
288												
289												
290												
291												
292												
293												
294												
295												
296												
297												
298												
299												
300												
301												
302												
303												
304												
305												
306												
307												
308												
309												
310												
311												
312												
313												
314												
315												
316												
317												
318												
319												
320												
321												
322												
323												
324												
325												
326												



Pouring bronze to form a huge propeller.

CHOOSING THE RIGHT CASTING

MODERN castings consist of metals plus metallurgy.

The value of a casting as compared to its cost can be measured only by cost and value in the end product.

Those two statements can be used as the legs of a square by which the value of any casting process as applied to any given cast product can be measured. If offered his choice of all the foundry processes and allowed to specify the casting methods a metallurgist can get almost anything he wants in a cast product. And if the values desired in the end product are considered first, and then the costs of machining and of heat treatments and of inspection and of other fabricating procedures which must be applied to the casting, and finally the foundry process which will work out to best advantage, then the purchasing department will be choosing foundries and foundry processes with highest economy.

What Happens in Casting

The values of casting processes must be compared in the light of what happens when a casting is made, and what happens when it is fabricated into an end product. The progressive occurrences are, in general:

1. Mold making tools are provided.

Many different types of casting techniques and equipment are available to the buyer or designer, each having special advantages of precision, production, strength or economy

•

By E. L. Cady

2. With them, molds are made.
3. Molten metal is poured into the molds.
4. The molten metal enters by way of a down gate, flows through a main passage or sprue, flows through branch passages or runners, flows through gates, enters the casting cavities. By similar passages the molten metal flows into riser areas.
5. As it flows, the molten metal must displace air from the passages and cavities. This air must escape by way of the sprue and in a direction contrary to that of the entering metal, or by way of open risers, or by specially provided passages, or through the porosity of the mold. This porosity is known as permeability.
6. The metal in immediate contact with mold surfaces cooler than

itself begins to solidify. Individual crystals form first. These join together into tree-like structures called dendrites. The word dendrite means "something that looks like a tree".

7. The dendrites are separate; they look something like ferns growing in a swamp. Molten metal continues to feed from the sprue and from the risers. It fills in the open spaces between the dendrites, the "interdendritic cavities".

8. An entire layer of metal thus solidifies or is deposited. Dendrites extend from this inward and into the remaining body of molten metal.

9. The molten metal usually is an alloy. Some constituents then will solidify at higher temperatures than others. The high temperature solidifying elements tend to form the first dendrites and to be somewhat concentrated at the areas which cool first. This almost never is a complete concentration, some parts of every element being found at every portion of the casting. Since the elements segregate somewhat, the concentrations are known as segregations.

10. As the metal solidifies it shrinks. Supplies of molten metal flow into the areas opened by the shrinkage. The supplying of this metal is the main purpose of the risers.

11. Thin sections, or any areas



Core assembly prior to the casting operation.

PROCESS

which are able to solidify completely, begin to block off any further feeding of molten metal to them. These areas at first are plastic, but as they cool they become more and more solid. The greater their solidities the greater their strengths.

12. The forming of dendrites and the depositing of solidified (but still plastic) metal progresses until the entire casting together with the runners and the sprue has solidified to a plastic state. The sprue, and any risers which are open to the air, may solidify very rapidly at their open surfaces. If the deposition of metal is completely progressive from the areas desired to be solidified first, then the casting conditions are ideal. But ideal conditions are rare.

13. The thin sections which solidified first are shrinking rapidly. Their strengths in pounds per square inch (psi) are much greater than those of the larger but more plastic areas. Therefore in shrinking the thin areas tend to pull the heavy ones out of shape.

14. The thick areas begin to acquire more strength in psi and to overcome the strengths of the thin areas. And since the thin areas are high in plasticity they tend to be pulled out of shape.

15. The last areas to cool remain the most plastic. Therefore they are the ones most pulled out of shape.

These last areas are known as "hot spots". Designing to avoid them, or better still to relegate them to areas where they make no difference and where the damage can occur without any harm to the casting, is the finest art of casting design.

16. As the casting becomes more solid and strong, the shrink forces obtain more power. Cores are crushed by the shrinkage, mold walls are crushed or broken, if the mold has been designed so that this will happen, although in some cases the shrink is to be restrained for purposes of dimensional accuracy and the mold members at those areas are made strong accordingly.

17. The metal is plastic, therefore gravity can cause various areas of the casting to flow plastically, to bend and deform. The casting tends to shrink toward its center, but the plastic flow tends to be outward or away from that center. Therefore another conflict is set up within the metal in addition to the ones created by the different cooling rates of various sections.

18. As the casting cools, the strengths of its areas become greater than the forces which seek to deform them. Those forces then are locked up as stresses within the casting; they become residual stresses, and in most instances they are weakening.

19. The casing must cool through its annealing range, and to some extent be self-annealing. It relieves many of its own internal stresses.

20. When fully cooled the casting may be annealed, or put through sub-critical stress relief treatments.

21. The gates, risers and other excess metal are removed.

22. During its molten and plastic stages the surface of the casting usually has oxidized. It also may

have picked up sand or other refractory material from the mold. This surface is known as scale. It is removed, usually by grit or shot blasting.

23. Inspecting, heat treating, machining and other fabricating operations are performed as needed.

The events which result in a casting, then, are highly complex. They have been studied for many years. They are subject to control. Upon the degree of control depends the degree of quality in the castings. Modern foundries are highly capable of quality control. But that control can be no higher than the foundry process permits it to be.

Loose Wooden Pattern Method

The method of supplying the foundry with loose wooden patterns has only one point in its favor. The cost of the pattern equipment to the purchasing company is least.

Wooden patterns may be made of dimethylolurea treated wood, or of hydrolized wood (Masonite), or otherwise prepared so they are unlikely to warp. But most of them are of types which will warp, crack and split. They may be repaired. But their accuracies are likely to be low.

Any pattern which is to be removed from sand must have draft. The poorer the pattern and the more the hand labor in making the mold with it, the greater must be this draft. The draft may make no difference whatever to the value of the casting. But draft can mean increased costs to machine, excess weight of the casting (most castings are bought and sold by the pound), sacrifice of highly desirable design features.

With these patterns the gates, runners, etc., must be cut by hand in the mold. This is high cost labor. It either raises the prices of castings, or at the same prices reduces their values.

The hand cutting is subject to the human element, therefore rarely is highly accurate. The effects of inaccuracy may, accidentally, be good. Usually they are bad.

The first bad effect is that the molten metal flows through the passages with unpredictable turbulence. In its turbulence it tends to erode grains of sand or other material from the mold walls. These grains may be impounded within the casting; they result in "dirty metal". Dirty metal is weakening to the casting, and it has no good effects

STARTING POINTS FOR SELECTING CASTING PROCESSES

Foundry processes are an enormously diversified but highly complex subject. No statements free of "ifs, ands and buts" can be made about them. But as a general starting point for discussions with foundrymen this brief table is given.

Accuracy can be a matter of dimensional tolerances, of fidelity to contours such as radial tolerances as measured from a reference point, and of smoothness of surfaces. On these factors, castings must be measured in terms of inches per inch. That is, .01" inch would mean plus or minus .01" on a 1" dimension, plus or minus .02" on a 2" dimension, and so on. In the table, generally:

High accuracy means plus or minus .005" per inch, or less.
Medium " " .010" per inch.
Low " " .040" per inch, or more.

Dimensions. Dimensions likewise have been classified ar-

bitrarily for purposes of this table, and for no other purpose whatever. In the table, generally:

Small dimensions mean from 0.250" to 8.0" on the longest dimension.
Medium " " " 8.0" to 24.0" " " " "
Large " " " over 24.0" " " " "

Metallurgical Control has been rated as close when it is likely to be a dominant factor in the value of the casting, and as important when it is an important but not a dominant factor.

Using the Table. Suggested method of use is first to look under the column listing the most important qualification the casting must have, then at the second qualification, and thus find the process which should be the starting point for thinking.

When the needed accuracy is	and the dimensions are	and the quantities are	and the alloys are	and the metallurgical control must or can be	then the most probable casting process is
High	small and highly complex	any	any	very close	precision investment casting
High	small and medium but complex	5000 minimum runs	zinc aluminum or bronze	close	die casting
Medium or high	Medium but complex	1000 minimum runs	zinc aluminum bronze brass iron steel	close	permanent mold casting
Low	any	very small	any	unimportant	loose wooden patterns
Low	any	small but many repeat orders	any	unimportant	loose metal patterns
Medium and Low	small and medium	any, but rarely over 100 per order	any	fairly important	gated wood or metal patterns
Medium and Low	small and medium, not too complex	50 or more, usually more	any	important	match plates
Medium & Low	Medium and large, complex	any	any	important	cope & drag

whatever upon tools when drilling or otherwise machining the casting.

As a second effect, the balance between the shrink forces is thrown out. All of the planning of the casting may be vitiated or even nullified. Castings betray strange combinations of residual stresses when being machined or after being allowed to stand and season. There are unpredictable defects.

As a third effect, segregations tend to be more pronounced, but also to be less predictable.

The inclusion of sand or other dirt in the surface areas may be greater, the scale be heavier. It must be remembered that these surface areas contain high percentages of the elements which solidify at the highest temperatures. These quite often are the most valuable elements in the castings. The soundest, least porous metal also is likely to be immediately below the surface. If the excess sand inclusions require that excess depth of surface be removed, these values are lost.

If the gate cutting is inaccurate enough, large quantities of the most valuable elements may be caused to segregate in the gates, runners and sprues. They then are discarded as scrap. But their costs and values appear in the invoice prices.

Loose wooden patterns sometimes are useful for experimental castings, and for very small runs, and for castings which are so bulky in relation to the loads they bear that their strengths and accuracies are of little consequence. But the very common loose wooden pattern method is far from being a true servant of quality control.

Loose Metal Pattern Method

Loose metal patterns are not subject to warping, splitting, wear on critical surfaces, and like troubles to the same extent as loose wooden patterns. They usually, but not always, cost more than the wooden.

Otherwise, the same analysis as the loose wooden patterns applies to the loose metal ones.

Gated Pattern Methods

Gated wooden and gated metal patterns are like their "loose" counterparts, but the gates and various of the runner areas are made as parts of the patterns. They cost a little more. Generalizations about extra costs are impossible to make, since the problems and costs of no two casting designs are alike.

Some of the most critical passages through which the molten

metal flows, then, are molded right with the casting cavities and are no longer subject to the vagaries of hand cutting.

It must be recalled that as the molten metal enters the mold it must displace the air (occurrence 5). If the speed with which the air escapes is known, either by measuring the permeability of the mold or else by the practical experience of the foundryman, then the gates and runners sometimes can be so planned that the air will act as a cushion to hold back the entering metal. The metal then flows steadily and not too rapidly, rather than turbulently. This makes for improved metallurgical control of the casting, and for the avoidance of dirty metal.

The possibility that metal may enter some areas too rapidly, solidify there, be remelted by the supplies of metal which pass it, and then be compelled to resolidify, also is minimized. Such remelting is metallurgically bad. It tends to cause bad grain structures, and to promote highly undesirable segregations.

The extra costs of gated patterns rarely approach the extra values of added quality control. And these patterns can reduce the costs of castings.

Metal Match Plate Methods

Match plates are machine molding devices for high production of small castings. They can increase the production per man hour by large amounts. Their tool costs are higher. And as additional tools they may need core dryers, forms in which green sand cores are set while being baked in an oven.

Almost any machine molding method has the advantage over almost any hand molding that the pattern draft can be less. This can mean a great decrease in pounds of metal per shipment of castings. And it can reduce machining costs and permit improvements of designs.

Match plates are high in quality control abilities.

Cope and Drag Methods

The cope and drag method of design and casting, using either wood or metal patterns, is primarily for medium and large sized castings. It may be used for either hand or machine molding. In this method, one pattern is provided for the cope and another for the drag of the same casting. Therefore the two halves may be molded simultaneously and then be fitted together.

The principal advantage is the time saved in the foundry. This advantage should reflect itself in lower costs of castings, the alloys used and the precisions required being equal.

Permanent Mold Casting

In all sand casting the mold is destroyed, first by the mechanical force exerted by the shrinking metal, and second in the removing of the castings. This is advantageous in that the mold offers very little opposition to the shrink movements of the hot and plastic metals and therefore does not set up unnecessary residual stresses in the metals. It is disadvantageous in that the mold offers less support against the forces of gravity; the losses of accuracy therefore are greater, and a mold which may have cost quite a bit to make is destroyed after a single usage.

Another important factor is that the sand mold must be at room temperature, or at least, its temperature is subject to very little control. All of the heat which keeps the molten metal flowing until small cavities are filled, then, must be supplied by the metal itself.

When the metallurgist or the product designer needs to overcome these deficiencies he may resort to permanent molds.

A permanent mold may be made of metal, of refractories, of metal with refractory coatings, or in some instances of simple materials such as portland cement concrete.

The permanent mold need not lose all the advantages of crushability of mold materials. Crushable cores, for example, may be used with types of permanent molds.

The temperatures of permanent molds are subject to control. If made of materials which will withstand such temperatures, such molds may be heated above 1000 degrees F. This means that the metallurgist has much closer control of the rate at which the casting cools. The options as to gating, runners and other passages for molten metals are much greater. The contour complexities and the dimensional accuracies of the castings can be higher.

Another option is to chill one area of the mold while heating another. The forming of the dendrites and the progressive deposition of the metal then will begin at the chilled area and progress toward the heated one. Progressive deposition of metal thus is subject to close

metallurgical control and the quality control of the casting is high.

Permanent molds can be high cost tools, to be justified by quality control and by the spreading of the tool costs over large numbers of castings. Most of them are for fairly small castings, but they have been used for castings weighing several tons.

Die Casting Methods

Die casting involves forcing of metal into metal dies. It is rare for a set of dies to cost less than \$1,000, and the figure usually is higher than that. In addition, high cost high precision casting machines must be used.

The higher the melting temperature of the cast metal, the shorter are the lives of the dies. Therefore die casting is at its best for a low melting point zinc alloy, and is more costly for a higher melting point aluminum alloy. The process also is used for some of the brasses and bronzes which, for the copper alloys, have low melting temperatures. But usage for ferrous alloys is rare.

With such alloys, the castings usually are of types which have large bulk as compared to the strengths required of them, although this does not mean that individual castings need be large. The process is high in precision, usually eliminates most if not all machining operations on the castings. It is a process for large production quantities.

On a per pound of castings basis, this undoubtedly is the highest cost casting method. On the basis of

ability to produce high strengths, high accuracies and high intricacies, it is the most effective process.

A development of the "lost wax" process, precision investment casting involves the production of patterns made of wax or of other dispensable materials, the covering or "investing" of these with ceramic materials which will set as cement sets, the elimination of the patterns by melting them out or by other means of disposal, and the casting of molten metals into the cavities thus provided in the ceramic materials. The investments (casting molds) then are destroyed to remove the castings.

The worst mistake that can be made about precision investment casting is to think of it as "a process". It is a family of processes.

As a comparison, machining might be described as "a process of fabricating items by the cutting of solid metals". This description, of course, would have no practical meaning unless the method of machining, whether with lathes or automatic screw machines or broaching machines or huge boring mills were specified.

Precision investment casting may involve tool costs for master patterns by which the molds for making the dispensable patterns are made, and for the making of those molds. The tool costs are not low, although they rarely approach those for die casting.

Because of the high diversities of the process, the selection of a supplier to make precision investment castings is very important. Some houses specialize on small castings,

others on large ones. Various houses also specialize on individual alloys or ranges of alloys. Only a few houses literally cast every alloy, in every range of sizes, and to every range of accuracies, of which the process is capable.

Pressure Casting Methods

Any die, mold or investment capable of withstanding the pressures may be used for pressure casting methods.

Pressure can have several effects. It can force the molten metal into cavity contours which otherwise would not be filled. It can permit casting at lower temperatures of the molten metal, with consequent improvements in metallurgical control. It can have a welding effect, causing small cracks or holes in the castings to close.

Pressure may be applied by direct pneumatic or hydraulic methods, or by centrifugal force. The pressures in use range from a few pounds per square inch up to several hundred pounds, with die casting pressures sometimes going much higher than that.

Centrifugal pressure also has the other centrifugal effects of causing elements of higher densities to go to the outer limits of the centrifugal radius. Since any dirt and any gassed areas in the metals are likely to be of low densities, this action causes the best elements to go to the outer areas of the castings where they are wanted.

General Considerations

There are dozens of variants of foundry processes. The selection of the foundry on the basis of its equipment and its executive and engineering personnel always is equally important as the selection of the process to be used.

In selecting process, a visualization of the events which result in a casting should be part of the discussion with the foundry sales engineers. The engineers in turn should be given the fullest data as to just how the casting is to be fabricated into an end product and just how that product is to be used.

Foundry processes are highly variable and each variant is highly controllable. The most common error in the buying and selling of castings is the failure to exchange enough information. Second only to this is the use of lowest cost pattern and other equipment when better equipment would permit much higher metallurgical and other quality control.

Molding machines are set up to receive molten metal.





One significant measure of economic dislocation is the current relationship of individual prices to other prices and to the general price level

By Louis J. Paradiso

Chief, Business Structure Division
Office of Business Economics
Department of Commerce

ARE PRICES OUT OF LINE?

IN appraising the significance of the current price level and price trends, it is necessary to distinguish between two questions. The first is whether the general price level at the present time is too high relative to the purchasing power of individuals and to other relevant factors. The second is whether the price structure is unbalanced as a result of war and postwar developments or, in other words: To what extent has the price structure become distorted as a result of the recent upward price movements? It is this latter question with which this review deals.

The discussion, therefore, is focused on the general relationship of prices to each other and to the general price level. Clearly the businessman is vitally interested in the relation of the prices of his products to the general level of prices or to prices of other products. If, for example, his prices are far out of line on the high side relative to other prices he should examine carefully the reasons and appraise the likelihood of a shift back toward a more usual position.

The Broad Price Trend

Before discussing the character of individual price dispersion, it is of interest to review the broader price trends as revealed by the changes in wholesale prices as reported by

the Bureau of Labor Statistics. From June 1946 to April 26, 1947, the all-commodity price index rose by 30%, the sharpest increase for a similar period in our history. Farm prices increased 27% in this same period while food prices increased 42%. All commodities other than farm and foods (industrial) increased 25%. Thus, the largest price increase among these major groups occurred in foods.

However, in such a broad movement the prices of many individual commodities in each of these categories of farm, food and industrial products increased by substantial amounts. For example, from June 1946 to December 1946, 13 percent of all commodities increased more than 50%. These include such industrial items as denatured alcohol, sole leather, cotton print cloth, silver, and misses' shoes; also foods such as butter, wheat flour, fresh pork and lard; and such farm products as hogs, steers, eggs, lemons and flaxseed.

When the commodities are classified in terms of administered or market-dominated prices it is found, as has been the case in past periods of rapid upward price movements, that for the group of price administered items the increase has been much less than for the market-dominated items. From June 1946 to December 1946, for example, the

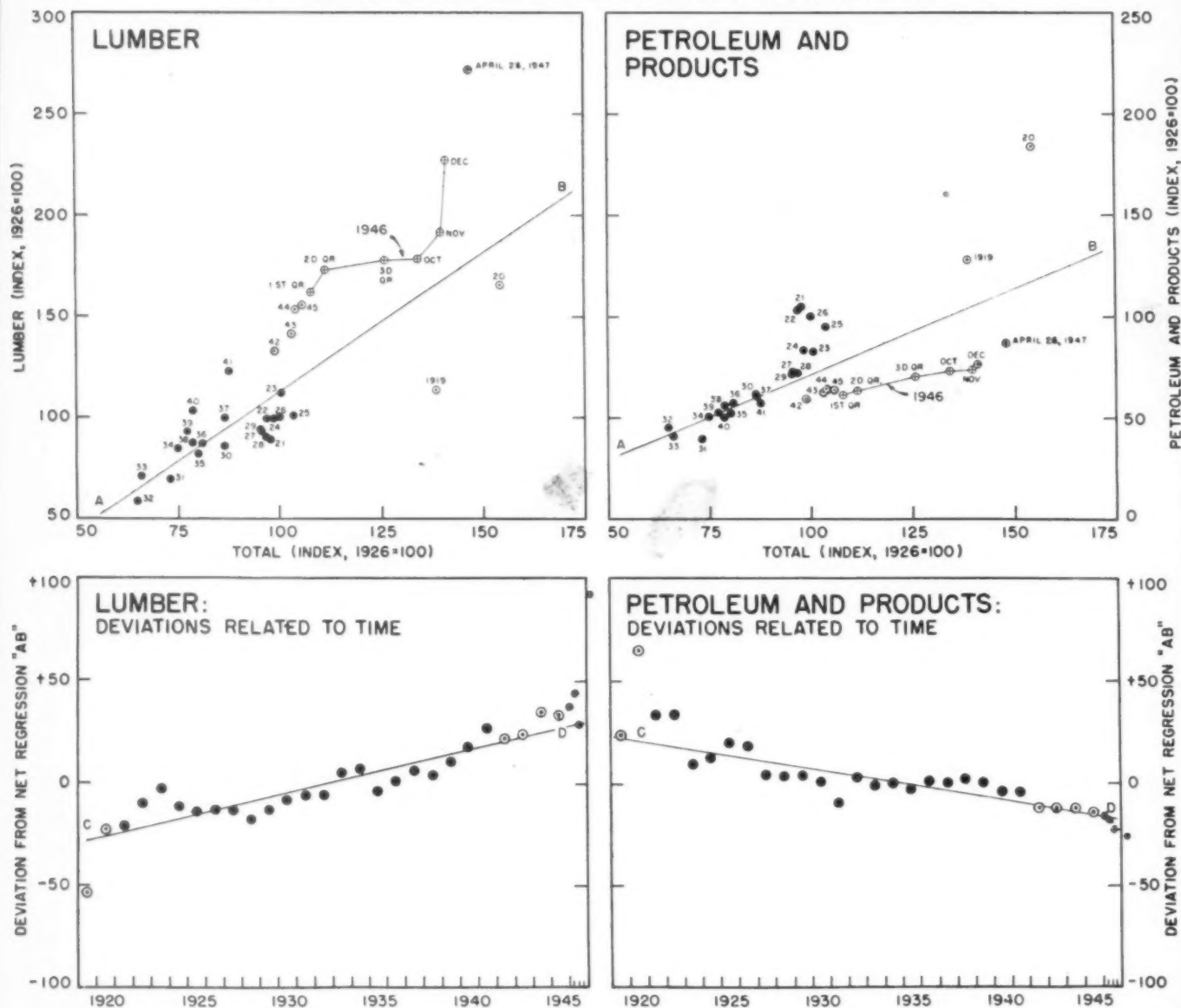
prices of 175 items classified as administered types increased by 12%, while the prices of 198 items which are essentially market-dominated increased 32%. The former group includes a wide variety of items such as many iron and steel products, agricultural implements, other finished industrial commodities and a few manufactured food products. The market-dominated group, while containing many farm and food products, also includes many industrial items such as hides and leather products, cotton goods, steel scrap, lumber and turpentine. The increasing gap which has developed since June 1946 between the administered and market-dominated prices is another characteristic of the recent trend which has resulted in the present price structure.

Individual Prices Out of Line

The businessman is vitally concerned with the position of his prices of individual items or groups of items in relation to prices of other goods competing for the consumers' dollar. One way of appraising the current position of individual prices is to compare them with their past relation to the general price level and determine whether the recent changes have brought the levels of the individual prices out of line with expectations based on the past experience.

RELATIONSHIP BETWEEN WHOLESALE PRICE INDEXES FOR LUMBER, PETROLEUM AND PRODUCTS, ALL COMMODITIES, AND TIME

NOTE - LINES OF REGRESSION WERE FITTED BY INSPECTION FOR YEARS 1921-41.



SEE FOOTNOTE 1, CHART 3
SOURCE OF BASIC DATA: U. S. DEPARTMENT OF LABOR

47-93

In the period from 1921 to 1941, for example, wholesale price movements of groups of commodities such as foods, oils and fats, and cotton goods have been closely related to the movement of the general level of prices as measured by the wholesale all-commodity index. The degree of relationship has varied by commodities. A 10 point increase in the index of all-commodity prices has been associated with a 11 point increase in the index of dairy products prices, a 14 point increase in the index of cotton goods prices, and a 20 point increase in the index of prices of oils and fats. (All of

these indexes are on a 1926=100 base.)

The accompanying charts illustrate these relationships for the period 1921 to 1941. The charts also show the position of the most recently available price index (April 26, 1947) in relation to the price index of all commodities and in relation to the long-term association of the prices for each group with the index of all-commodity prices.

For example, it is clear from the chart that at the end of April 1947, meat prices were still considerably above what would have been expected on the basis of the past rela-

tion of these prices to the movement of all prices. In other words, the level of meat prices was about 25% above the line of relationship as projected from the period 1921 to 1941. Also, it may be noticed that in this period the points representing the position of meat prices in relation to all prices cluster fairly closely about the line of relationship, thus suggesting a close degree of association between the movement of the prices of the meat group to prices of all commodities in the 21-year period. This type of association was found to prevail for nearly all of the major groups of

NOTE: - LINES OF REGRESSION WERE FITTED BY INSPECTION FOR YEARS 1921-41

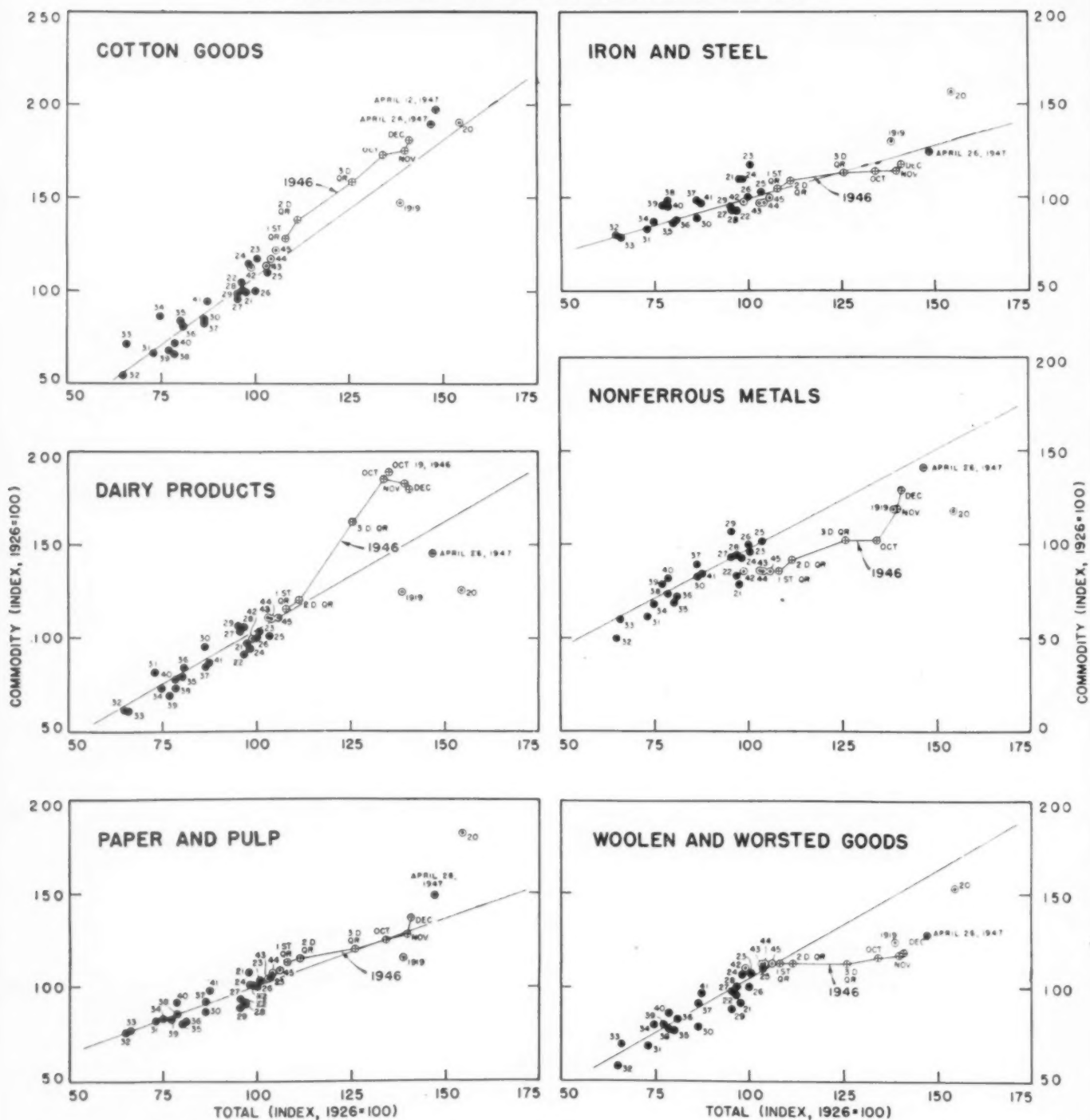


SOURCE OF BASIC DATA U.S. DEPARTMENT OF LABOR

103

RELATIONSHIP BETWEEN WHOLESALE PRICE INDEXES FOR SELECTED COMMODITIES AND ALL COMMODITIES^{1/}

NOTE:—LINES OF REGRESSION WERE FITTED BY INSPECTION FOR YEARS 1921-41



^{1/}SEE FOOTNOTE 1, CHART 3.

SOURCE OF BASIC DATA: U. S. DEPARTMENT OF LABOR.

47-92

of commodities which need to be watched if any weakness should develop.

Examples of the type of adjustments which have occurred recently are provided by the movements of prices of dairy products and oils and fats. Until recently the prices of both of these groups of commodities were high when considered

in terms of their past relationship to the general price level.

Wholesale prices of dairy products increased by 48% from June to October 19, 1946 when they were at a peak. This increase brought these prices to a level on that date which was 30% above their past relation to all prices. As more supplies of dairy products became avail-

able and as consumer resistance developed, prices of these products declined very sharply. By April of this year the decline had been sufficient to bring the level of dairy prices back in line with their prewar relation to all commodity prices.

In the case of oils and fats, the average price before decontrol was (Please turn to page 324)

THE PURCHASING AGENT AND HIS JOB

There's more to being a purchasing agent
than seeing salesmen and signing orders

By Curran Ridout

Assistant Purchasing Agent
International Standard Electric Corp.
New York

BRIEFLY put, the essential duty of a purchasing agent is to properly and economically satisfy the need for materials and services which his company requires in the course of conducting its business. The *modus operandi* of achieving that result is usually developed over a period of time, and is generally a composite of trial and error, common sense, and plain hard work. There is no mysterious formula that will insure the right answer every time.

However, the purchasing profession has been developed just like other professions, such as law or medicine. Over the years there has been a gradual accumulation of knowledge and experience. Certain principles and techniques have proved most effective, and have withstood the test of time. Thus, by common usage and acceptance of these methods, purchasing has become somewhat of a science.

Given a man with a high degree of intelligence, place this specialized knowledge at his disposal, indoctrinate him with the hard learned principles of purchasing, and he may be ready to tackle a purchasing job. Of course, there are purchasing agents and purchasing agents—all degrees of competence, as in other professions. The extent of a man's success depends not only on how many of the principles he learns, but how many he learns to apply correctly.

In executing the duties of his job, a purchasing agent is often called upon to make decisions which require a knowledge of at least the rudiments of many other professions. In the course of his daily work, he may well become to a degree an economist, engineer, traffic manager, accountant, lawyer, banker, clerk, and salesman. This versatility is what makes a good purchasing agent. For example:

As an economist he must study business conditions and forecast the market trends, that he may be able to plan and schedule his buying so

as to take advantage of the most favorable conditions and prices.

As an engineer, he uses technical specifications, those definitions of quality that are the tangible measuring tools insuring the standards and uniformity of his company's product beyond question.

As a traffic manager, he will carefully consider the origin and destination of the goods needed, the costs involved in their handling and transportation, extra packaging required, and other factors beyond the consideration of unit price.

As an accountant, he will keep such control over the quantities on hand vs. quantities needed, that the inventory balance and investment are favorable and correct at all times. He will clear his suppliers' invoices promptly for payment, so that cash discounts may be earned and taken.

As a lawyer, he will draw a fair contract that safeguards the interests of his company in the transaction. He will not be caught napping on "off-color" propositions. He will know when it is to his company's advantage to enlist the services of the legal department to cover the more intricate phases of a deal.

As a banker, he realizes that material is money, one operation removed. Consequently he sees to it that the materials he buys are well bought and properly cared for.

As a clerk, he finds that accurate and comprehensive records of his transactions are essential. Memory alone will not serve to guide him when he needs facts to assist him in making a decision or in seeing an agreement carried through.

As a salesman, he recognizes the fact that he is presenting one of the faces of his company to the public. He concerns himself with the impression to be left in the minds of those with whom he comes in contact, and builds good will for the company.

One of the important benefits to be derived from the academic study of purchasing is the ability to recog-

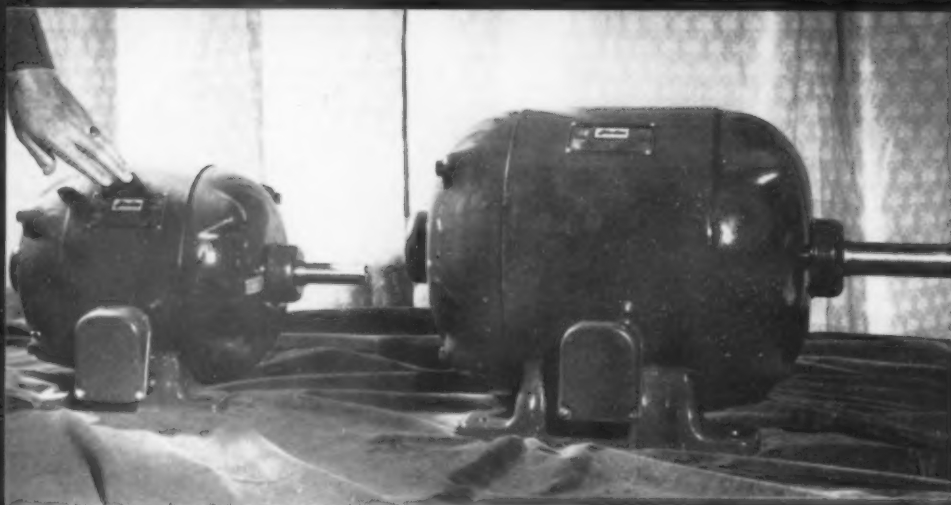
nize and analyze the factors surrounding a transaction, so that when the deal is consummated it will be worthy of the closest inspection by superior officers and found satisfactory. Then experience in continued negotiations will develop the ability to see the analogous features of various transactions as they arise, and thus the basic principles may be applied to specific purchases at any time. Bargaining ability is also developed through experience, and is a very valuable asset.

The purchasing agent must be ever mindful of his business reputation. The wholesome respect of suppliers represents the acme of performance. That respect can be won only by thorough knowledge of the job and a consistent record of fair dealing. One of the first things a purchasing agent learns is to appreciate the value of good relations with his suppliers.

Of equal importance in making his work most effective and in establishing his position in the company organization, is winning the confidence and respect of his associates, his management and those for whom he buys.

A third area in which reputation counts is among men in the field of purchasing. The progressive purchasing agent gives assistance to other purchasing men and is interested in extending the knowledge of the purchasing function and its significance.

The position of purchasing agent places a man in a strategic position to gain an intimate and diversified knowledge of the company and its operations. He knows at first hand what the company uses in the way of materials and equipment, how it is used, what the costs are, and the "inside facts" of the product. This diversity is one of the reasons why purchasing is an unusually interesting and challenging of all occupations. It is also one of the reasons why such a high percentage of the leaders of business today were the purchasing agents of yesterday.



Insulation accounts for the difference in size of these two 5 hp 1750 rpm, 4-pole Westinghouse Life-Line motors. The motor on the left is silicone insulated, is in the 254 frame, weighs 145#, is 12½" high and 19¾" long. The one on the right is Class A insulated, is in the 324 frame, weighs 250#, is 16" high and 27" long.

MOTOR SIZE REDUCED ONE-THIRD

Life-Line all steel motor announced at Westinghouse Machine Tool Electrification Forum — Metallic rectifiers declared practical for supplying d-c power — Silicone insulation and lubrication make possible higher ratings for totally enclosed non-ventilated motors.

ANNOUNCEMENT of a new line of alternating-current motors, known as the Life-Line all steel motor, which is 35% smaller in size than its predecessor, was made by F. C. Rushing, manager, motor engineering, Westinghouse Electric Corporation, at the Eleventh Annual Machine Tool Electrification Forum sponsored by Westinghouse, which was held at the company's huge new motor and control plant at Buffalo, and the Statler Hotel in that city.

Also, the use of metallic rectifiers for converting alternating to direct current for operating constant or adjustable speed motors, was declared to be practical by E. C. Watson and F. L. Reed of Westinghouse D-C Engineering, Motor Division, who declared that this conclusion had been reached following several years of laboratory tests coupled with 18 months actual operating experience in the Buffalo plant.

Another interesting announcement pertained to the use of Silicone resins for winding insulation and Silicone grease for bearing lubrication in a totally-enclosed non-ventilated motor to operate at higher temperatures than a Class B motor. This use of the Silicones makes it possible to build the 3 and 4 hp 4-

pole motor on the same frame as that used for the open motor.

Mr. Rushing stated that the reduced size of the Life-Line motor has been accomplished without sacrifice of electrical properties. Starting torques have been increased as much as 134% per lb. of motor and maximum torques increased much as 116% per lb. of motor.

He said that high efficiencies and power factors are maintained, and along with improved appearance, maintenance requirements are materially decreased.

Prelubricated ball bearings are used throughout the line. They require lubrication no sooner than five years after the motor is placed in operation. It is felt that five years without relubrication is conservative. The sealed bearings withstand extreme dirt tests. Shock resistance is increased many-fold, and vibration and noise reduced to new low limits.

Mr. Rushing stated that fewer insulation burn-outs will be experienced because of new features in insulating materials and improved winding techniques. "In short", he said, "this newest squirrel-cage motor takes its place with four or five other peaks of progress in motor history."

The use of steel instead of the more conventional cast iron makes the motor stronger, he declared, and though its use is not entirely new, the novelty is that the structural steel sections are as thick as they would be if made from cast iron.

In the matter of corrosion, he said that it is a fallacy that steel corrodes faster than cast iron. Research tests demonstrate the two materials corrode at equal rates. The explanation for the common belief lies in the fact that when cast iron is replaced by steel, the steel is usually of thinner section and will rust through sooner.

Several types of motors are attained through extensive interchangeability of parts, as shown in accompanying illustration, which shows the basic subassemblies and parts for the three different Life-Line motors now being produced at the Buffalo plant.

Metallic Rectifiers

In their discussion of metallic rectifiers as a power supply for adjustable speed motors, Messrs. Watson and Reed stated that for the range of sizes from 1 to 15 hp, the cost is less than for a motor generator set, efficiency is higher, regulation is essentially the same, commu-

tation is not adversely affected, mounting is not as much of a problem, and, maintenance is simplified.

The overall efficiency of a 5 hp motor powered from the metallic rectifier power pack was said to be 60%, which is somewhat higher than would be obtained from a motor-generator set combination.

"As to the initial cost, that of the rectifier power pack is not yet firmly established. However," they reported, "just as the price of a motor-generator set varies approximately as the square root of the kilowatt rating, it varies almost directly on the rectifier. From this it is evident that on small sizes the rectifier drive will have a price advantage that it will lose on the larger ratings. Up to about 15 hp the rectifier power pack is competitive with the motor-generator set. Beyond this point, the price advantage goes to the motor-generator set."

"The rectifier has an advantage over the m-g set on installation and maintenance. The power pack is smaller than an m-g set and its location is not critical. It can be mounted up out of the general floor area so that it does not take up valuable floor space. The power pack, because of its few parts, requires little attention by the maintenance personnel."

In conclusion, the report stated, "The power packs have been in operation for about 18 months, mostly in the new plant at Buffalo and have given commendable service. They have filled a real need in supplying d-c power for small d-c motors in scattered areas."

Silicone Insulated Motors

In their report on higher ratings for totally enclosed non-ventilated motors by using high temperature

insulation, Messrs. W. H. Formhals and G. P. Gibson, A.C. Engineering, Motor Division, Westinghouse Corporation, stated that the chemistry of silicones is complex and is based on the use of silicon instead of carbon in molecules similar to the heavy hydro-carbons. Silicon characterizes the inorganic materials just as carbon characterizes the organic materials. The silicones fall into three general classes—resins, liquid, and rubber. All have important basic properties, heat stability and moisture resistance.

While no definite standards have been set up for machines with silicone insulation, the American Institute of Electrical Engineers has considered the problem and has tentatively established a permissible temperature rise of 140° C for Class H insulation. This is almost 3 times that for Class A insulation.

A few motors have been built on the 254 frame for the 5 hp 4-pole rating. Double glass silicone bonded wire is used for the stator coils. When compared to the standard Class A totally enclosed non-ventilated motor on the 326 frame, there is considerable difference in size. See accompanying illustration.

Reporting on tests, they stated that a motor operating at 310° C. and one operating at 300° C failed after more than 5100 hours. A second motor operated at 300° C ran more than 6600 hours before failing while one operated at 290° C ran more than 8000 hours.

"As a result of years of tests," they reported, "it has been found that the life of insulation is halved for each 12° C rise in operating

temperature above a reference temperature point, or doubled for each 12° drop below that temperature. Extending the insulation life tests on this basis, the equivalent life at 180° C (the hot spot allowance tentatively given silicone insulated motors) for the motor tested at 310° C would be over a thousand years. On this same basis the tests at 240° C will have to be terminated because it is improbable that failure will occur in this century."

The silicone grease tested has been in use for about two years in test stands having a heating and cooling cycle, and in the high temperature motors. To date there has not been a bearing failure, and of great significance is the fact that no sign of deterioration of either the grease or the bearings is apparent.

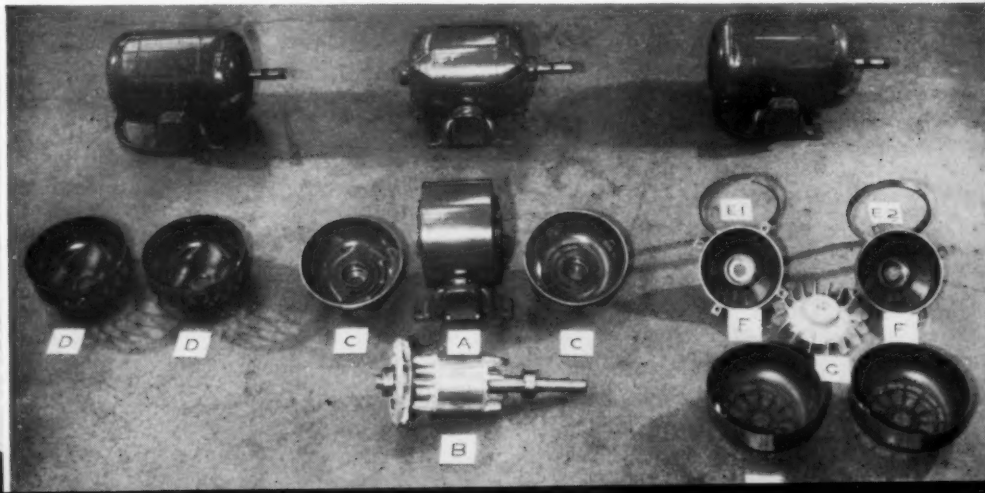
The motors run much hotter than the standard open frame machine, due to relatively small radiating surface for the heat loss. Messrs. Formhals and Gibson stated that the motors will have efficiencies comparable to those of open motors of the same rating.

In conclusion their report stated: "The result of these researches and tests are very encouraging and from them it is concluded that the use of silicone in high temperature motors is feasible. Through their use it is now possible to build a 3-hp and a 5-hp 4-pole motor on the same frame as a comparably rated open machine. Further research may indicate that it will be possible to go to even larger ratings on the same frames."

Tell Berna, general manager of the National Machine Tool Build-
(Please turn to page 336)

**L. R. Ludwig, Manager,
Buffalo Divisions,
Westinghouse Electric Corporation**

The basic subassemblies and parts for the three different Life-Line motors being produced illustrate the inter-changeability that has been designed into this motor. Stator "A" and Rotor "B" common to all three models. Add end bells "C" and an open-protected motor results as shown in top center. Reorient brackets, add hoods "D" to open-protected motor and splash-proof motor on the left results. The fan-cooled motor on the right is made up of stator "A", Rotor "B" with blower "G", adapter rings "E-1" and "E-2" end bells "F" and Hoods "H".



PURCHASING AGENTS EXCHANGE IDEAS

District Council meeting at Minneapolis
hears National Directors discuss topics
of current interest to purchasing agents

THE District Council meeting of District No. 3, N.A.P.A., was held at the Radisson Hotel, Minneapolis, on April 18th. National Vice President E. G. Swanson of The Herman Nelson Corporation, Moline, presided. In addition to the usual business deliberations on regional and national Association affairs, a series of papers on purchasing topics was presented by the several National Directors. The range of subjects included Association programs and administration, and also more general problems. Abstracts of four of these papers are presented herewith, providing a representative cross section of what purchasing agents are thinking about in these days.



THE subject of preventive maintenance is a very large one and one that will take the full cooperation of the Operating, Engineering and Purchasing Departments in order to work out a successful program. Most firms have a program of some kind, we think the most common is to standardize on one manufacturer's make of the various types of equipment used, thereby cutting down the number of repair and replacement parts needed for each kind of repairs and replacements.

Most manufacturers of machinery or equipment will, if you contact them, point out to you the parts of the equipment that are most likely to break if the equipment is overloaded, and with this information it is possible to have on hand these parts so when the breakdown occurs no time will be lost in waiting for replacement parts.

In addition to holding the repairs and maintenance cost to a minimum another outstanding result may be obtained, and that is cutting down the loss of production time by an efficient maintenance set up.

We have in our district a firm that just recently organized a preventive maintenance crew with this very thought in mind. The crew now consists of only 4 men, but they expect to increase the crew to possible 10 or 12 as the first crew be-

comes more familiar with the work and what will be expected of them.

This preventive maintenance crew will work an 8-hour night shift 5 days a week. At the beginning they will only do cleaning and oiling of the production machinery. After they become more proficient the company plans to have them set up the various production equipment so that each department will be ready to start their production line immediately on the morning shift. In other words, they expect the various Department foremen to leave notes for the night crew advising them what product will be run the next day, and if the machine is not already set for that product, they will make the adjustments and set up the equipment so that there will be no delay in starting production on the morning shift.

At the present time their production machinery is changed over from one product to another by the

foreman and mechanics in the respective departments.

It will also be the duty of this crew to report to the Maintenance Foreman the mechanical condition of the various production units so that the production department may arrange their schedules, permitting the maintenance crew to completely overhaul or repair machinery when not needed or in actual operation.

This night crew will also have a definite schedule for routine clean-up work, which will allow more time on actual production. At the present time the production crews stop work a few minutes early each day in order to clean up their department before the close of the shift.

The success of this plan will depend a great deal upon the cooperation of each of the foremen in the various production departments, but they believe that it will be worked out, and they hope function satisfactorily.

PREVENTIVE MAINTENANCE

By H. S. Drummer

The Washburn Company
Rock River Valley Assn.

BEFORE the War and OPA, the St. Louis association, averaging about 175 members, could find too few buyers with related interests to meet as groups either before regular meetings or during the interim between meetings. The possible exceptions, buyers of steel and paper products, informally discussed problems and compared notes before or at dinner, but at that time companies making up these industries operated along almost identical lines and quoted identical prices, and the talks brought out only items of general interest.

We substituted what we thought was of more value to the members; namely, our "Commodities Discussions". A leader with up-to-date data on charts led the discussion in which everyone was invited to take part. Production records and price trends of the basic commodities were reflected in graph form. Power output and carloadings were also covered, and in each case their effects on business were discussed.

Such discussions, even though part of a regular meeting program and entered into by everyone present, could probably be classified as group meetings. We recommend them highly to the smaller associations. With good leaders and good

charts a real lively session generally results, with arguments and opinions coming from all directions. Everyone has a good opportunity to see how his fellow purchasing agent thinks.

The War and Government regulations shut off the sources of data for charts and it was necessary to resort to a modified program, with a leader making a few remarks and then asking for comments. The results are good but the enthusiasm prompted by the charts is not in evidence. Now that the information is getting back into trade publications we hope to get back into the old swing again, possibly by our September meeting.

This year at the suggestion of our President, we did institute a series of group meetings held just before the regular meetings. The chairman of the Educational Committee presides. The purpose of

these group meetings is for the exchange of general information such as methods, organization, and reports to management.

We are using our Educational Committee to educate our own members. It has long been felt that since the purchasing agent does not have as spectacular a part in management as sales and production men, the actual worth of the purchasing department has not been brought to light.

The present series of group meetings is to bring out the best points of as many of our members as possible so they can be used by others to make their jobs more valuable to their respective companies. One thought might make the difference between an ordinary individual and an executive. Of course it is understood that these thoughts must be developed and adapted to each particular case.

GROUP MEETINGS

By R. J. Brockman

Sefton Fibre Can Co.
St. Louis Assn.

DURING normal times inventory control is not too difficult; however, it certainly is the exact reverse during abnormal periods such as those we have just passed, and, in fact, are still going through. It is difficult to determine which is worse, the war or the postwar period, from the standpoint of trying to maintain a well-balanced stock or inventory control.

During a war period, stock cards, stock books or stock sheets are only of value as a record of the various items and sizes. They are of very little practical value as a basis for purchases due to the fact that conditions become quite topsy-turvy, and a purchasing agent must adjust his buying habits to coincide with the conditions prevailing, for example:

1. The quantities he purchases greatly increase.

2. Where one supplier of a commodity was formerly sufficient as a source of supply, he must now scour the market to fill the increased demand.

3. Quality is almost forgotten for fear of offending the supplier who already has too many customers.

4. Lengthy commitments are made to assure the P.A. of a place in the line.

5. Price is secondary and not too important.

Next comes the post-war period with additional and varied headaches, such as general price increases, car shortages, continued scarcity of certain important products such as paper, steel, coal, plywood, sugar, caustic soda, soda ash, copper, lead, glycerine, construction materials, etc.; also strikes and other types of work stoppages which add to the difficulty in obtaining the needed items still on the short and scarce list.

On the other side of the postwar picture, management begins to look in on the picture and insists on a better balance of the items on hand

that represent an overstock. Too much capital is tied up in goods that are not being turned; they must be liquidated.

Excessive inventories can be very unhealthy, as every purchasing agent knows. So buying must be curtailed on those items; stocks must be greatly reduced, and in many cases cleaned out completely. This is usually a very slow process. This can partly be accomplished by exchanges and returns of merchandise to established and regular sources of supply, short term commitments, some hand-to-mouth buying. About one to three months is the predominant purchasing policy.

In conclusion, a diligent application of hard work and effort toward stock reduction will bring about a better balanced stock.

INVENTORY CONTROL

By F. S. Erjavec

Northern Drug Co.
Twin Ports Assn.

PURCHASING is an important function of management. The degree or amount of authority that is granted by management to the Purchasing Agent will vary with each individual enterprise, becoming increasingly important in proportion to the size or growth of an institution. Because this power is delegated and because the purchasing functions are so varied and important, it is necessary that management knows what the Purchasing Agent is doing. In small concerns, this may be handled best by conference, but in many cases, even in small enterprises, a written report has definite advantages over a verbal one.

Let us examine various activities of a Purchasing Agent's work to see if we can decide what Management might want to know about it. No two companies, jobs or institutions are exactly alike, so the reports are apt to be worked out quite differently for each one. Still, the basic functions from which those reports may be arranged, will be quite similar.

I. General Policy Planning. Purchasing is one of the first acts of management whenever a new enterprise begins. It is a primary and most important part of operation, whether we deal with a utility company, a division of government, a mine, oil well, manufacturing company, or what have you.

Conferences at top level should be held as often as necessary to set policies concerning total planned operations, full manufacturing plans, quotas, budgets, schedules of supplies, deliveries, etc. Discuss with management all new processes, new or substitute materials; confer on special purchasing problems. Consider speculative purchasing which may be good policy because of market conditions of unusual character. Decide about a policy of reciprocity with suppliers, if that concerns us, and long range planning in general. The Purchasing Agent should be represented at meetings when policies are made, along with engineers, finance officers, production men, sales managers, and all others on whom falls the responsibility for carrying out policies which are once established.

Management needs help from the Purchasing Agent in making such policies and wants reports of accomplishment, progress, and final completion of the work from the Purchasing Department. Such reports may be verbal. Many times, however, it will be worth the time

PURCHASING DEPARTMENT REPORTS

By L. R. Kendrick

Kendrick-Bellamy Co.,
Denver Assn.

to make up a typed report which will be preserved, handed around to others for consideration, filed for record of progress or for use of accountants in payment of invoices, taxes, etc.

Formal written reports impose on the Purchasing Agent an added sense of responsibility and make him exercise greater care in their form and accuracy of preparation, than in the case of verbal reports. They add prestige to his departmental work, bring it before management in the best possible way. In time, written reports become yardsticks by which he and others may judge quite accurately as to the accomplishments of his departmental work.

II. Advisory Activities. The Purchasing Agent meets many people from outside his own organization. He gathers much information about a variety of things. Some of his gleanings may interest the research men, the engineers, or the production men. The office manager or accountant may not have learned about some new process, machine or work procedure, designed to save time and cost. Such outside information might help them.

The Purchasing Department is what a man makes it. An imaginative approach may suggest ways of helping other fellows in their jobs. The reward for such action will be found in many ways, not the least of which is the respect and cooperation of the entire organization.

Reports on such advisory matters are best if short and in written memorandum form. Duplicates of any important ones might be made and handed on to several departments, as well as a copy for management's desk. Or a summary of suggestions might be handed on to management weekly or as required by their number or importance. Good management is looking for suggestions for improvements of every kind. You never can tell how important a suggestion may be.

III. Departmental Operation. We assume that a department has been set up, the head of it chosen, to-

gether with the necessary personnel, space for offices and activities provided, equipment bought, records set up and routine work delegated. No doubt there is a budget for the cost of that office, including salaries, rentals, and necessary incidental expenses for operation. Management will want to know if we are keeping within that budget, how much work is handled. Maybe an occasional report on efficiency of personnel would be in order.

Such reports as come out of routine operation should be sent to management on a short form, filled in briefly, with comparisons by months this year, or with same month a year ago, or cumulative for the year, etc. These will indicate whether a Purchasing Agent is doing a good, economical, efficient job of managing his own machinery, but may not be nearly so important to management as other reports.

IV. Procurement Functions. These activities are the ones to which most Purchasing Agents devote a major part of their time. A brief outline of duties, which will vary with many men and which can be considerably enlarged upon, will include:

1. Determining the amount to buy, with schedule for deliveries, choice of carrier, routing for shipment or delivery. This involves a thorough knowledge of top management policy, plant needs, prices, present business conditions, future economic trends, and many other factors.

2. Specifications and Standards. These would be set up after consultation with other departments, and once determined, passed on to vendors. Such rules and definitions help to secure needed items of necessary quality or standards, and afford some precise basis on which to compare competing prices offered by different vendors.

3. Locate acceptable sources of supply.

4. Negotiate satisfactory terms and conditions of sales and purchases.

(Please turn to page 322)

[illegible]

Purchase Order form. The second, third and fourth copies are punched at top edge for insertion in a post binder.

Combination record in visible card file provides accurate control of inventory quantities and purchase schedules with minimum clerical effort; physical count is necessary only once every two years

Superintendent of Purchasing
Mutual Life Insurance Company of New York
New York City

WHEN a machine operates to a precision of one part in ten thousand and keeps to that precision day after day, month after month, and year after year, it is considered quite a machine. Similarly, when a system operates with an extraordinary high degree of accuracy and does so economically, it too is considered quite a system. This is what our combination order, delivery, and perpetual stock record does, and so we are satisfied that we have found a good answer to the question of what to do about stock control of operating forms and supply items used in a financial institution such as a bank or a life insurance company. The same principle is ob-

viously applicable to purchase records and control in more general fields as well.

We know we are getting a remarkably high degree of accuracy in this combination Kardex Record, because we have two independent checks that confirm this. One is a periodic physical inventory and the other is a monthly tabulated analysis. We now get along by taking less formal physical inventories, preferring to take one every two years. This is done for its psychological effect and to verify that there is no carelessness in filling requisitions which would result in sending more or fewer items than the requisition calls for.



Hence, signals lagging behind the current month indicate inactive items which require review for re-appraisal of economical purchasing quantity or, under present circumstances, of maximum and minimum. The Graph-A-Matic control signal is fully extended to the right when a normal supply is on hand. When the balance on hand drops to the ordering point, a Requisition to Purchase to replenish stock is prepared by the record clerk, and the signal is moved to "O", indicating that an order should be placed. If the item has not been delivered when the balance reaches one-half of the ordering point, a preprinted postcard is mailed to the vendor for delivery information and the signal is moved to "C". When the quantity on hand falls to the minimum balance, the item is brought to the attention of the buyer for expediting by personal contact, and the signal is moved to "B". Should the stock be completely disbursed before goods are received against an outstanding order, the signal is brought to the letter "H", indicating that a requisition is being held for delivery of stock, and the situation is brought to the writer's personal attention for urgent expediting. This seldom happens, because we keep careful watch of rates of consumption and place orders early enough and in large enough quantity to anticipate our needs and we follow, as explained, by postcard and personal contact long before stocks become dangerously low.

FORM 1169 UNIT 12

Black Lead Pencils with Rubber Tip

STOCK Grade #3

PACKAGE 1/2 Gross Box Bands of 12

VENDORS

DATE	VEN.	ORDER NO.	REQ. NO.	QUAN.	PRICE	PER. ORD. COST	DATE REQ'S.	DATE	REQ. NO.	QUAN.	UNIT PRICE	UNIT	UNIT PRICE	TOTAL COST
3-9-42	1	10511	40464	50 Gr	2.35	Gr 117.50	3-1-42	4-25	40464	600	12	.192	115	15
7-15-42	2	23355	9421	25 "	2.35	" 58.75	7-1-43	7-28	9421	300	12	.192	57	57
3-13-44	3	4861	3322	25 "	2.28	" 57.00	3-1-44	3-23	3322	300	12	.186	55	86
1-17-45	4	11534	1123	25 "	2.28	" 57.00	1-11-45	1-22	1123	300	12	.186	55	86
8-7-45	2	16251	10721	25 "	2.35	" 58.75	8-1-45	8-13	10721	300	12	.192	57	57
4-2-46	3	6005	2676	25 "	2.30	" 57.50	3-23-46	4-26	2676	300	12	.188	56	35
7-25-46	1	9187	5404	25 "	2.40	" 60.00	7-23-46	7-29	5404	300	12	.193	58	80

1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952

0 200 150 150 100 100

C 100 75 75 50 50

B 50 38 38 25 25

FORM 1169 INVENTORY OF STOCK

MONTH	TO	QUANTITY	BAL. O. H.	MONTH	TO	QUANTITY	BAL. O. H.	MONTH	TO	QUANTITY	BAL. O. H.
7-46	Bro Forward		80	9-46	90	2	291				
	2	3	77		41	3	288				
	67	5	72		18	2	286				
	71	4	68		23	1	285				
	50	6	62		3	2	283				
	30	3	59		8	1	282				
	26	5	54		14B	6	276				
	4	4	50		14B	12	264				
	10	10	40		14B	6	258				
	53	7	33		14B	2	256				
	5404	300	333		14B	2	254				
		47			14B	1	253				
3-46	90	1	332		14B	6	247				
	7	4	328		14B	4	243				
	1	3	325		7	2	241				
	95	6	319								
	58	4	315								
	60	5	310								
	51	3	302								
	27	5	297								
	20	4	293								
		40									

FORM 1169 UNIT- 12

C O

REQUESTION TO WITHDRAW FROM STOCK

THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK

PURCH. DIV. REG. NO. 8132

DEPARTMENT Albany NO. 3

DATE PREPARED 9-24-46

NOTE: - IN SPECIFYING QUANTITIES, PLEASE STATE ACTUAL NUMBER ON HAND, AND NUMBER OF UNITS REQUIRED.

NUMBER ON HAND	ACCT. NO.	NO. UNITS REQUIRED	FORM NO.	DESCRIPTION	NUMBER ON HAND	ACCT. NO.	NO. UNITS REQUIRED	FORM NO.	DESCRIPTION
1	158	3	1105	Manila Ruled Pads - 8"x12"					
2	"	4	1107	Plain White Pads - 5"x8"					
1	"	2	1169	#3 Black Lead pencils					
1	"	2	1180	#3 Pins					
10	"	25	1186	White carbonized adding machine paper					
2	"	5	1305	Wire staples					

FOR PURCHASING DIVISION USE ONLY

REQUISITIONED BY Mae Doe

AUTHORIZED BY DATE

APPROVED BY John Doe 9-25-46

DATE

DATE OF SHIPMENT

PACKED BY

POSTED BY

TAB DIV

CHECKED BY

ACT. G. DIV

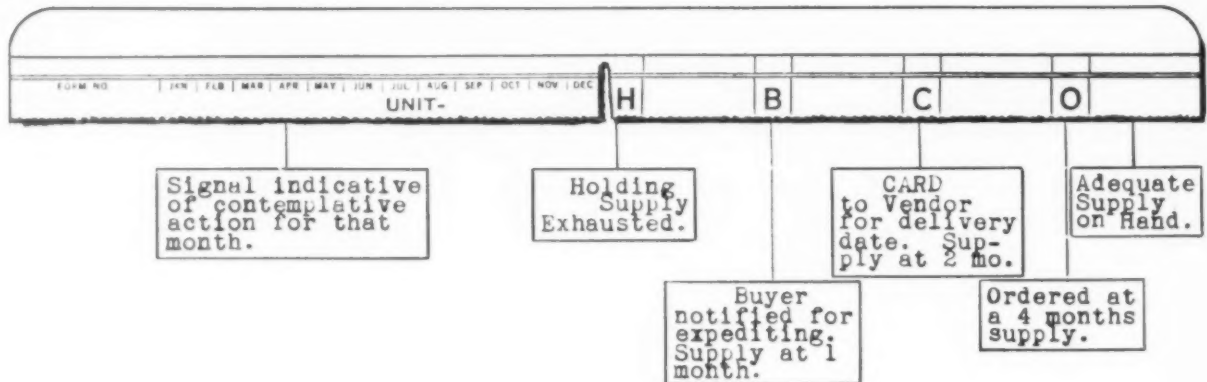
PURCH. DIV.

Visible record includes the order card (upper left), delivery card (upper right), and perpetual stock card (lower pocket)

Requisition form used for withdrawing supplies from stock

STOCK CONTROL INVENTORY SIGNALS

Position of Signal



One Colored Signal to a Card

Green: average stock item under control

Red: stock item requiring special attention - absolutely necessary for conduct of the company's business.

Yellow: questionable stock items - obsolete - discontinuance at later date (Signal moved to month of probable discontinuance on left hand side of insert.)

Green: (with hole) plates held (with permission) by the vendor - usually Sales Promotion items.

Blue: plates held in Storeroom.

Yellow "A": Plates, etc. on miscellaneous items without Form No.

Yellow "B": possible combination run with another form or forms - combination Form Numbers noted on insert.

Code for color and position of signal tabs on lower edge of perpetual stock card

The Order Card, 4" x 5", upper left-hand pocket, gives the form number of the item, specifications, vendors, and a summary of orders issued, showing the date of order, order number, requisition number, and quantity and cost of goods ordered.

The Delivery Card, 4" x 5", upper right-hand pocket, is a receipt record which is posted with the date the requisition was prepared, the

date of receipt of the complete or partial shipment, the requisition number, the units received, the unit of disbursement, the averaged unit cost of the balance on hand, and the total cost of material received. At the bottom of this card is noted the "O"; Ordering point; "C" Card to vendor; and "B", Buyer's attention, quantities referred to previously. These important quantities and balances are established from the ex-

perience shown on visible record.

The Perpetual Stock Card, 8" x 5", lower pocket, is used to prepost all stock withdrawal requisitions by entering the proper code symbols and the quantity requisitioned, which is deducted from the balance on hand. The requisition is then filled from stock.

With this record, the buyer can review by visual inspection, the over-all picture from the position and color of the signals— $\frac{1}{4}$ " colored signals being used to indicate related items as to specifications, vendors, etc. Also, when a requisition is prepared to replenish stock, the Order Card is attached for the buyer's inspection and guidance.

The above is a skeleton outline of the place of the visible record in our scheme of operations. Mention was made in the first paragraph of a double check on the accuracy of our record—one check being the formal



Entries to the visible record are posted daily from purchase orders, receiving records, and stock requisitions

physical inventory taken at periodic intervals. Actually, we take other informal inventories in the course of our daily operation. Whenever the record indicates that an item has been disbursed down to the ordering point, the stockroom is asked for a physical count and this is compared to the visible record figure. These counts, by being made at the ordering point, reduce the amount of physical labor in counting and so reduce the risk of miscounting. Furthermore, spot counts can be made throughout the year without interfering with the usual work of the stockroom. In the event that the reported count should disagree with the figure shown on the visible record, we can get a recount quickly. In most instances we are in agreement—in fact more often than I expected we would be, considering the type of items required in the extensive operation of a life insurance company. Since we buy a six months supply as a maximum on most items, we now check on an average of twice a year; and ultimately we shall have more checks made.

We have a second, wholly independent, check of our record which is made by the Comptroller's Department. The fourth copy of our purchase order form goes to the comptroller's Department to establish certain control. (Our purchase order forms are prepared in quadruplicate. The original goes to the vendor; the second is the office copy; the third is the stockroom copy for receipt of material; and, the fourth is the Comptroller's copy.) The Comptroller's Department also receives the stock withdrawal requisitions after they have been filled.

By punch card tabulation methods using master and detail cards, the Tabulating Division sets up the necessary accounting charges and produces a monthly report, showing account classifications: code, requisition and form numbers; total monetary disbursement of each form (at current average cost); and total unit disbursement of each form. A copy of this tabulated report is checked against the visible record—the total of monthly disbursements shown is compared to the total posted on the perpetual stock card at the end of each month. Any discrepancy—and they are few—is carefully run down and adjusted. The unrelated proof furnished by tabulation is tied into the general accounting, and so we feel that our cross checks—visible record to physical inventory, visible record to item stock counts, and vis-

ible record to tabulated reports—give us a basis for complete confidence in the practical accuracy of our stock record.

It might be thought that this combination record is more expensive than the less modern records that were formerly used. As a matter of fact, we are using fewer people to obtain better control and to accomplish more under difficult buying conditions than we did before, maintaining balanced inventories sufficient to protect us against out-of-stock conditions has been mentioned. Systematic bunching of orders for related items supplied by the same vendor on the basis of current consumption and present stocks cuts our costs by materially reducing the number of orders written, while buying enough to last six months at a time prevents issuance of innumerable small orders

that clutter up records and build added costs in many directions.

As a matter of interest it might be mentioned that since we have had this system in operation, we have been able to eliminate waste motion to the point that the entire buying operating and related functions require fewer buyers than were previously needed.

Having had several years experience with this system during the hectic war period, and years of purchasing without it when buying was easier, there is no shadow of doubt in my mind or in that of my associates that a procedure such as ours which takes advantage of a well organized Kardex record with effective signal control is ideal for control of orders, receipts, and stock items for an insurance company or other institution having similar problems.

14 B 6 2	8491	1168	223	12
14 B 8 1	8313	1168	54	3
14 B 5 A 5	8340	1168	106	10
14 B 5 A 3	8290	1168	112	6
14 B 5 A 3	8291	1168	112	6
15 B 9	8303	1168	823	12
15 B 61	8349	1168	74	4
15 B 7	8376	1168	149	8
15 B 58	8233	1168	37	2
15 B 58	8344	1168	56	3
			4188 ✓	225 ✓
15 B 90	7831	1169	39	2
15 B 41	7904	1169	58	3
15 B 18	7965	1169	39	2
15 B 23	7803	1169	19	1
15 B 3	8132	1169	39	2
15 B 6 1	8158	1169	19	1
14 B 6 2	7876	1169	116	6
14 B 6 4	7877	1169	232	17
14 B 1 7 1	7875	1169	116	6
14 B 20	8067	1169	39	2
14 B 5 6 3	8191	1169	39	2
14 B 5 6 6	8231	1169	19	1
14 B 8 1	8292	1169	116	6
14 B 7	8486	1169	77	4
	8233	1169	39	2
			1006 ✓	52 ✓
15 B 90	7831			
14 B 5 8 6	8292			
15 B 8376				
15 B 90	7831			
15 B 56	7958			
15 B 45	7772			
15 B 45	8156			
14 B 8 1	7710			
14 B 20	7702			
14 B 82	7988			
14 B 8 1	7987			
14 B 8 1	8238			
14 B 8 1	8310			
15 B 7	8233			
15 B 43	7883			
15 B 3	8132			
14 B 6 1	7876			
14 B 14 1	7920			
14 B 1	8069			
14 B 15	7985			
14 B 23 1	8287			

Supply Catalog Page		
MAY 1944		
FORM NO	OFFICE SUPPLIES	UNIT
1167	Pencils	
1168	#1 Very Soft	12
1169	#2 Soft	12
1170	#3 Medium	12
1171	Penholders	12
1172	Pen Points	
1173	Extra Fine	1 gr.
1174	Fine	1 gr.
1175	Medium	1 gr.
1176	Medium Ball	1 gr.
1177	Stub	1 gr.
1178	Pen Sets - Handign	1 set
1179	Pins, Common	
1180	#1, 1-2/4"	1 lb.
1181	#2, 1-1/2"	1 lb.
1182	#3, 1-1/4"	1 lb.
1183	Pins, T	
1184	#2, 1-1/2"	100
1185	#3, 1-1/4"	100
1186	Plates, Addressograph, Style C	5000*
1187	Polish, Furniture	1 bot.
1201	Reinforcements, cloth	100
1202	Ribbons, Adding Machine Coupons	1
1203	Ribbons, Typewriter	
1204	State make of machine, noiseless or standard,	
1205	Inking and color	1
1206	Ribbons, Typewriter Coupons	1
1207	Rulers	
1208	12"	1
1209	15"	1
1210	18"	1
1211		
1212		

*Primarily for Home Office use only. If ordered by Agency a letter of detailed explanation for need must accompany requisition.

Monthly stock report is produced by punch card system in the Tabulating Division

Specimen page of the Supply Catalog which lists all items carried in stock



PLANT APPRAISALS FOR ADJUSTED INSURANCE COVERAGE

By A. L. Wolfe

UNFORTUNATELY, the average individual's concept of insurable value is formed from "book values" which show original cost and an annual, arbitrary, maximum depreciation charge which gives no consideration to the all-important factors of increased cost of material and labor to replace damaged or destroyed property, maintenance, repairs, replacements, utility and adequacy.

Even in normal times, such a yardstick produces figures which fall far short of actual and insurable values. In these abnormal times, such a method is still further out of line. Replacement costs and utility should be the determining factors, not age alone. The true definition, in simple words, of present day sound insurable value is: "Replacement cost, less a reasonable amount of depreciation."

Obviously, it would be unwise to place yourselves in a position where you risk certain loss because you did not act on the definite knowledge that the values of your properties have increased. It is fair to ask yourselves: "Are we willing to part with our buildings and their contents for the amounts of insurance we have on them?" Total loss by fire, windstorm or explosion may force you to do that very thing, and there are such things as total losses.

Keep in mind the thought that insurance based on yesterday's costs will not cover today's values. If you are to let your insurance companies carry the financial load, it is essential that you know just what your sound present day values actually are. How is that sound insurable value to be determined? Custom and statute place that burden on the property owner.

There is no need to remind you that the cost of material and labor has gone up by leaps and bounds, nor to bore you with a long list of statistics. However, there are a few figures you will do well to keep in mind:

If we use the 1925-1926 index for an average of all types of construction as 100, you will find that in 1916 that figure was 60.3; in 1917, the first year of World War I, the index was 68.9; the following year it went up to 80.3. 1920 hit the high point of that time, and the figure was 126. Then the index cost figure works down to a low of 70.4 in 1932, and from that date has continued to rise until it now shows a peak of 164.6.

In other words, it would cost $2\frac{3}{4}$ times as much to build a building today as it did in 1916; almost $2\frac{1}{2}$ times as much as in 1917; $1\frac{1}{3}$ times as much as it did in 1920; and $2\frac{1}{3}$ times as much as

the cost in 1932. It would even cost 150% of what it cost in 1941, and 140% of what it cost in 1942.

Building valuation figures submitted by any reputable contractor, engineer, or architect should be acceptable to any fire insurance company. You can secure the services of any one of several nationally known appraisal firms. Establishing values before insurance policies are written is bound to make the loss easier to adjust.

I would voice a word of caution about using charts of so-called "conversion tables", due to the fact that such charts sometimes show an average of only a few cities, and would not be a satisfactorily accurate factor for your own buildings. Where national charts are used, which contemplate all types of construction, you must remember that your own buildings may not exactly match that national average of construction. In the final analysis, it will be much safer to have some one who is properly equipped establish your values.

No matter what method may be used in determining present day sound insurable value, and no matter what that value may be, it is extremely necessary that the figure include consideration of "postwar intangible cost advances" which have been brought about by the following factors:

A. Shortages in building materials and skilled building labor, with extra inducements offered to acquire either or both.

B. A marked decrease in labor efficiency, and use of semi-skilled in place of skilled workmen.

C. Fewer competitors for contracts.

As for depreciation, that is of course a relative factor. For insurance purposes, the annual rate of depreciation charges should be modified by the condition of the buildings. The annual charges should be considered net for average condition, reduced by 10% to 30% for good to excellent condition, and increased by 10% to 20% for poor condition. Buildings over forty years old, having full utility value, where age alone is the only depreciation factor, are another story. In such cases, depreciation may be figured as low as 10% for "practically perfect" condition, to 55% for "definitely deteriorated" condition.

No doubt, you employ expert accountants to set up values of equipment or other contents of your buildings. In the school and college

(Please turn to page 330)



EDUCATIONAL BUYERS MEET AT OMAHA

WITH more than 250 delegates in attendance, representing 140 colleges and universities in 33 states, the Educational Buyers Association held its twenty-sixth annual convention at the Fontenelle Hotel, Omaha, Nebraska, April 30th through May 3rd.

Charles Hoff of the University of Omaha was chairman of the Convention Committee, assisted by T. N. McClure of the University of Denver, A. M. Knapp of Sweet Briar College, Seibert Mote of the University of Utah, L. G. Baker of the University of California, J. S. Hemphill of Perkins Institution, and the national officers of the Association. Host institutions were the University of Nebraska College of Medicine, Creighton University, and the Municipal University of Omaha. Harlan Kirk of Iowa State College headed the Iowa-Nebraska Host Committee, assisted by Glenn Buck of Doane College, Robert Burke of Creighton University, R. B. Saxon of the University of Nebraska, and J. T. Thomas of the University of Omaha.

Pre-Convention Sessions

The Wednesday morning pre-convention session was in the form of a "workshop" at which those in charge of regional and group activities found practical guidance and training for leadership. EBA Vice President Holger B. Bentsen of George Williams College, Chicago, presided at this meeting.

Theme of twenty-sixth annual convention of the Educational Buyers Association, as vast college expansion program gets under way, is "Back to Purchasing"

Executive Secretary Bert C. Ahrens reported on the regional meetings of 1946-47, reviewing the features that had proved of outstanding interest, effectiveness and value. Gerald D. Henderson of Vanderbilt University reported on the Association's educational program, and with F. G. Martineau of Brown University gave a demonstration of the case study method of teaching and discussion. The material used for this demonstration was the case entitled "Townsend Manufacturing and Supply Company—Loyalty to a Supplier" from *Problems in Industrial Purchasing*, by Howard T. Lewis.

Glenn Buck, Treasurer of Doane College, presided at the luncheon meeting. The speaker was T. C. Carlson, Vice President of Finance, University of Arkansas and Past President of the Central Association of Business Officers, who discussed "The Business Office as a Public Relations Medium".

T. N. McClure, Business Manager of the University of Denver, presided at a conference of Busi-

ness Officers on Wednesday afternoon. A discussion of "Veteran Students and College Administration" was led by Nelson R. Henson, Director of Training Facilities Service for Vocational Rehabilitation and Education, U. S. Veterans Administration, Washington, D. C. This was followed by a panel discussion of college business officers' problems, including the inadequacy of today's retirement systems and the special problems of endowed, church and private colleges. Harold W. Herman, Editor of *College and University Business Magazine*, Chicago, gave a "birthday report" covering the first year of publication. A. L. Wells, Engineer and State Agent of the Phoenix-Connecticut-Equitable Group Underwriters, spoke on plant appraisals and adjusted insurance coverage on college property, a subject of particular importance at the present time, when replacement values are out of all proportion to cost and ordinary depreciation schedules. An abstract appears elsewhere in this issue.

Warm-Up Party

For the majority of delegates, the convention started with the annual "Warm-Up" dinner party on Wednesday evening. It was an enthusiastic and thoroughly enjoyable occasion. EBA President James J. Ritterskamp, Jr., of Washington University, St. Louis, presided. Hugh Wallace directed the entertainment features.



EBA Officers for 1947-1948

Front: H. W. Loman, Treasurer; Gerald D. Henderson, President; Bert C. Ahrens, Executive Secretary.
Rear: Vice Presidents H. B. Bentsen, Rev. J. Leo Sullivan, Charles Hoff.

Acting on behalf of Governor Peterson, Ted Metcalfe, Chief Admiral of the Great Navy of the State of Nebraska, awarded several commissions and certificates of office in that organization to Association officers and guests, with appropriate initiation ceremonies. Henceforth, these buyers will answer to the title of "Admiral", and in addition to their purchasing duties will have supervision of all seamen, tadpoles and goldfish under their command at their respective home ports.

Dr. Wilfred Payne, Head of Humanities at the University of Omaha, was the speaker of the evening. His topic was: "A Professor Looks at the Business Office". Commenting on the fact that the geographical frontiers of the world have mostly been conquered, he pictured the educator as a pioneer and adventurer on the frontiers of science and intellectual progress. Absorbed in this quest and dedicated to these achievements, he has developed a sense of values and an approach to his work which does not, in a typical case, attach the same importance to the details of college administration that are essential to the work of the business officer. Much of the misunderstanding and annoyance in their mutual relationship is directly due to this difference of approach. Without minimizing the contribution which good business management makes to the work of the educational institution, the speaker urged that the more "practical" business man-

agers make an effort to understand the professional viewpoint, and to undertake their responsibilities as a means of implementing progress on the intellectual frontiers. There are frontiers, too, in purchasing and administration, which the organization and deliberations of the EBA conference will help to overcome.

Back to Purchasing

President Ritterskamp called the first general convention session to order on Thursday morning, and spoke briefly of the progress and accomplishments of the Association year. He introduced his associates on the Board of Directors—Vice Presidents Bentsen, Henderson, and Hoff, Secretary Ahrens, and Treasurer Edward K. Taylor of Cornell University Medical College—who had worked with him in carrying out the year's program.

Secretary Ahrens reported on the highly effective work that had been accomplished in maintaining close contact with the various governmental agencies concerned with veterans' education and with the distribution of war surplus property. He reported a healthy growth in membership and activity in all sections of the country.

Treasurer Taylor presented a financial report that showed the Association to be in sound condition, with increasing reserves that assure stability of operation and permit the undertaking of a broader program of service.

The keynote address by Stuart F. Heinritz, Editor of PURCHASING

Magazine, New York, introduced the general conference theme — "Back to Purchasing". Despite the fact that many materials are still hard to get, and plenty of headaches remain for the purchasing officer, the speaker declared that the day of compromise and substitution and delivery at any cost is passing, and the time has come to revive and apply the principles of sound purchasing. He analyzed current business and market conditions as being definitely a buyers' market, not in the strictly economic or statistical sense, but as a situation in which demand will bring out the necessary production in adequate quality and quantity, when buyers once more have the opportunity for choice in respect to materials and sources, and the opportunity for negotiation in a competitive business economy. These conditions, he said, are the normal conditions in the competitive system; therefore they should not be viewed with alarm or as the harbingers of depression.

Citing the tremendous advances due to accelerated wartime research, in which fifty years of technical progress were compressed into a five year span, he urged buyers to become acquainted with and take advantages of new and improved materials. At the same time, it is the buyer's responsibility to direct research into the channels that offer the greatest utility and value. Most industrial research, the speaker said, has its origin in the promotion of a particular product, whereas consumer research is concerned with the best way of accomplishing a basic purpose or satisfying a need.

Price is still subordinate to quality and service, but it is one of the fundamental factors in purchasing, and present conditions permit a more balanced consideration of all factors, including cost. Many instances of a return to firm pricing policies were cited, indicating that the escalator clauses and open-end price terms are fast disappearing from sales and purchase contracts. Now the purchasing officer's problem is to buy on terms that will give his institution the benefit of price adjustment on declining markets, just as the escalator and "price at time of shipment" clauses protected sellers in advancing markets. Several means of accomplishing this end were suggested, and the good faith of suppliers is attested by the fact that these new arrangements are quite widely accepted in today's contract dealings.

In summary, Mr. Heinritz reaf-

firmed the conference theme, that now is the time for buying practice to return to sound fundamental principles of value. The significance of the coming buyers' market, he said, is that it presents the first opportunity in nearly a decade, and the very first opportunity in the experience of those who have recently come into the purchasing field, to apply these principles in their work. He concluded by urging: "Let's not miff that opportunity."

Stock Yards and Boys Town

Following the morning session, the delegates boarded a fleet of chartered buses for a tour of the city, with attractive co-eds from the University of Omaha as guides to tell about the various points of interest en route. This trip brought the group, just at noon, to the famous Omaha stock yards, second largest livestock market in the country. Luncheon, featuring famous Omaha beef, was served in the Livestock Exchange Building.

R. B. Saxon, Purchasing Agent of the University of Nebraska College of Medicine, presided. He introduced Ed Janike, Executive Secretary of the Omaha Livestock Exchange, who explained the operations of this busy market, strategically located between the cattle grazing country to the west and the grain country to the east, equipped with exceptionally fine transportation facilities, around which one of the great centers of the meat packing industry has grown.

William Loeffel, Professor of Animal Husbandry at the University of Nebraska, spoke on "Tips to Purchasing Agents on Efficient Purchasing and Economical Usage". His remarks were supplemented by a most interesting and enlightening demonstration on the grading of beef, dietary values of the several grades, food preparation to conserve these values without excessive

loss of weight and nutritive elements, and cutting for cafeteria service.

From the stock yards, the trip proceeded to famous Boys Town, just west of the city, where everyone was deeply impressed by the splendid work being accomplished by Father Flanagan and his associates with

the youngsters who comprise the citizens of this unique community. An opportunity was given to inspect the campus and the fine modern buildings, dormitory, athletic and shop facilities. The high point of the visit was a concert of sacred music in the Memorial chapel, specially presented for this occasion by the

TABLE I

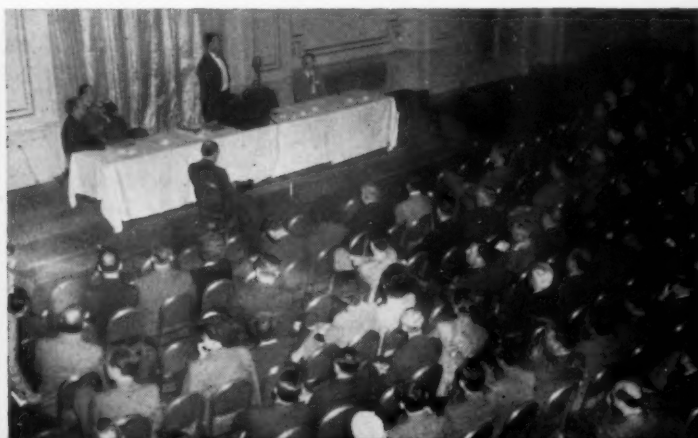
RESPONSIBILITY FOR PURCHASING ACTIVITIES IN COLLEGES AND UNIVERSITIES

	Purchasing Department Responsible	Purchasing Jointly Responsible	Using Department Responsible
Handling Claims and Adjustments	83%	13%	4%
Follow-Up of Purchase Orders	82%	10%	8%
Selection of Vendor	46%	43%	11%
Determination of Price to be Paid for Purchases	58%	33%	9%
Supervision and Control of Central Storeroom	73%	9%	18%
Disposal of Salvaged Materials and Supplies	55%	25%	20%
Checking Vendor Invoices against Purchase Order	45%	36%	18%
Central Storeroom Inventory Record	67%	6%	26%
Materials and Supplies Reclamation	43%	30%	27%
Equipment Inventory Record	52%	9%	35%
Determination of Quality of Goods to be Purchased	7%	60%	33%
Receiving All Deliveries	44%	10%	46%
Determination of Quantity of Goods to be Purchased	14%	45%	41%
Preparation of Purchase Specifications	11%	34%	55%
Inspection of Purchases Received	6%	24%	70%

Omaha's host committee kept things running smoothly and pleasantly



The meeting hall was filled for the opening session





**Henry Abbett
(right) presents a
gift for Boys Town**

Boys Town Choir under the direction of Father Schmitt.

The return trip was by way of Creighton University, University of Nebraska College of Medicine, and the University of Omaha. At the latter campus a stop was made for inspection of the main building—one of the outstanding educational plants of the country—and the efficient, well appointed business office there. Refreshments were served in the assembly room.

The Thursday dinner was at the Birchwood Club. Presiding officer was The Rev. J. Leo Sullivan, S.J. Director of Purchases for Holy Cross College.

Centralized Purchasing

J. B. Rork, Purchasing Agent of the University of Denver, presided at the Friday morning business session. First speaker was F. L. Abbott of Teachers College, Columbia University, who presented the results of a study of the administrative organization and control of the purchasing function in the educational field. The information had been carefully analyzed and charted, and Mr. Abbott summarized some of the more significant points as follows:

The most common practice is to have all business phases concentrated in a general business office, organized on a functional basis, with purchasing as one of several separate divisions. The general business manager typically is responsible to the chief administrative officer of the school.

Purchasing is strictly centralized in about 40% of the cases studied. In 50% it is centralized except for certain individual items such as books and food.

Policy determination for purchasing is a joint responsibility of the chief administrative officer, the

business manager, the purchasing agent, and the department heads. In about half the cases, this policy is a matter of written record.

The purchasing agent's authority is generally set forth in specific regulations. This is especially true of publicly supported institutions.

The purchasing agent has a voice in setting departmental budgets to the extent of providing information on prices and availability of desired materials and supplies, but not in directing the specific expenditures.

Quality and service are the primary considerations in making a purchase, price being a relatively minor factor.

Little use is made of testing laboratories, but in public institutions existing laboratory and testing facilities are used.

In private institutions, the purchasing agent probably makes personal purchases for faculty and staff members, and probably considers it an unwise policy.

It is general practice to maintain a central storeroom for items in regular use. Maximum and minimum quantities for stock purposes are determined cooperatively by purchasing and using departments. Stock quantities are controlled by perpetual inventory records, supported by annual physical count. Inventories are priced at cost per unit, before discount.

The usual purchasing forms are used, with more complete systems in effect at the larger institutions, but in 10% of the colleges reporting there is neither a requisition nor a purchase order form. Acknowledgment copies of purchase orders and reports of purchasing department operations are virtually non-existent.

A tabulation of current practice in respect to apportioning responsi-

bility for the various purchasing activities — whether handled by the purchasing department, using department, or jointly—is shown in Table I herewith.

Campus Safety

John Roche, Director of the Industrial Division, National Safety Council, Chicago, addressed the meeting on "Safety on the Campus". The crowded conditions prevailing in most colleges today, and the extensive use of temporary buildings of the portable type, have greatly increased fire, accident and health hazards. Fire losses in 1946 were at a new high, he said, and as a consequence the insurance rates, including public liability, are being advanced. There is no accurate record of the accident rate in colleges, since for the most part the college is not liable for accidents to its students, though it has such a liability in respect to its employees.

Conditions prevailing in the shops of some engineering schools, according to Mr. Roche, would not be tolerated in industry. Students should learn the fundamentals of safety in design and shop practice, and in plant layout, yet it is difficult to have safety topics included in course teaching, since other subject matter usually seems more important to the technical instructor.

Where the use of temporary buildings is necessary, the speaker suggested that certain precautions should be observed. Put in plenty of water lines; consult with the local fire chief to be sure that sufficient fire equipment is available to cope with possible blazes; install automatic sprinklers as a matter of course; install fire detection and alarm systems so that fires may be dealt with in their earliest stages; make all electrical installations strictly in accordance with the code; have a regular inspection system to keep fire hazards at the minimum.

There are traffic hazards on the campus, including motor vehicles and bicycles. These should be controlled by traffic regulations, inspection to see that vehicles are in good condition, and insistence that drivers be competent.

Mr. Roche presented a five-point program for safety:

(1) The top administrative officials should be sold on the importance of safety measures, and should issue a stated policy on safety regulations and practice.

(2) Responsibility for safety should be assigned to a particular person as one of his regular duties.

(3) Establish an accident record system, reporting even the minor First Aid cases. One of the benefits of this would be to indicate where unsafe conditions exist and the various types of hazards that are encountered.

(4) A safety committee should be organized, including a representative for every field of campus activity. Their duties would include regular inspection to locate and eliminate fire and accident hazards, the promotion of safety practices and First Aid training, and generally spreading the safety message.

(5) A consistent and planned educational effort by means of safety posters and booklets, and speakers on special safety topics.

Panel Discussion

The panel discussion at this meeting included three topics. Fred Knight, Assistant Business Manager of the Chicago Schools, University of Illinois, introduced the subject of administrative organization of the purchasing function. The scope and limitations of a purchasing department, and the definition of its authority, he said, must be established by a higher authority. When this has been done, the department should be organized with an adequate staff and system and facilities to give satisfactory service within that definition.

Three things make a successful purchasing organization, said Mr. Knight: a good purchasing agent; good assistants; and the cohesive force of a strong and unified departmental spirit. The purchasing department head must take as his first responsibility the hiring and training of good assistants, to whom the actual operations can be delegated with confidence. This means well defined lines of authority and the cultivation of leadership and sound policy in dealing with associates,

subordinates, and vendors. The purchasing agent who fails to develop a competent understudy is remiss in his duty.

With such an organization, purchasing can provide satisfactory service, and can establish that fact among the various department heads by the exercise of diplomacy in presenting the purchasing viewpoint. By rising to the challenge of procurement in times of difficult supply, confidence in the purchasing department can be won.

Edward K. Taylor led the discussion on cash discounts. It was his contention that many such potential savings are lost in educational purchasing. To a certain extent this situation can be improved by streamlining and speeding up procedures in the processing of invoices for payment. It was pointed out, however, that where public funds are involved there is usually a strict regulation against paying for goods until they are actually received and vouched for, which is frequently after the expiration of the discount date. Among the private institutions, the industrial practice of taking all discounts when dealing with suppliers of known reliability is generally followed, even though the goods have not yet been received, such payments being subject to adjustment in the event that any difficulty is encountered with the goods.

William L. Christensen, Assistant Purchasing Agent of the University of Utah, outlined his practice in respect to the problem of purchasing on annual orders rather than on the basis of small orders "as you need 'em". The latter practice reflects the typical attitude of the absent-minded professor or the department that is not sufficiently interested in business phases of university operation to make a considered advance estimate of probable requirements. For the most part, he said, department heads

today are keenly aware of what they want and how much they will need, and are ready to cooperate with the purchasing agent.

At the University of Utah, a detailed list of probable requirements for the year is requested from each department. These lists are analyzed and classified in the purchasing department, quotations are secured, and purchases made in the most economical quantities or for total requirements. If these estimates are supported by actual requisitions, the goods are charged directly to the department for which they are ordered. Otherwise they are charged to stores on a general purchasing account, to be charged out to the departments later as issued. This increases the danger of loss through obsolescence, but there are few cases in which this cannot be allocated to departmental budgets if due to careless estimates or changed requisitions.

Surplus Property

At the Friday luncheon, Chairman E. K. Taylor introduced Dr. Ernest V. Hollis, Chief of the Veterans Education Facilities Program, U. S. Office of Education, Washington, who spoke on "Acquisition of Surplus Property by Institutions of Higher Education—Yesterday, Today, and Tomorrow". Dr. Hollis prefaced his remarks by pointing out that the colleges today are Big Business. Colleges and universities have a plant investment of three billion dollars, and a 93% expansion of facilities, costing five and one-half billion dollars at today's costs, is currently under way to provide for an expected total enrollment of three million students by 1949—more than double the prewar peak. Current operating budgets have also doubled, now amounting to more than a billion dollars annually. The government is vitally interested in this

E & I Cooperative is in capable hands: Bert Ahrens, Ella Carson, Gerald Henderson, Dave Watson, Mary Hagen, and Manager Bill Price



The meat cutting demonstration was interesting to all





Pres. Ritterskamp turns over the gavel to President-elect Henderson

development, as 30% of current income is represented by government payment of veterans' fees, besides the tax support for state universities. Legislation is now pending to make funds available to take up some of the added costs of construction.

Large amounts of building space and equipment have been distributed to the schools from war surplus property. Currently there is an effort to discontinue the priority system in order to speed up disposal, but the schools are still in a very favorable position in that the Federal Works Agency heads the list as a government agency and for veterans' use. The purchase symbol should still be used in making application for property. The Office of Education is still disposing of property acquired as donation from Army and Navy sources. This property is distributed through state agencies. Most of the desirable items will be distributed by the end of 1947.

Dr. Hollis made special mention of real property—land, buildings and equipment—that are still available. This condition is expected to prevail for another six to eight months.

The speaker urged that purchasing officers keep in close touch with officials in the donations program, with the state representatives who serve as expeditors, with FWA and Office of Education officers in the nine geographical areas. A justification of emergency need is no longer required, but specific request for the educational discount should be made.

Afternoon Session

H. W. Loman of Pennsylvania State College presided at the Friday afternoon meeting. First item on the agenda was a report on the operations of the E and I Cooperative,

presented by D. F. Watson of the University of Chicago, President, Treasurer E. K. Taylor, and Manager W. S. Price. The past year has been an active and successful one, resulting in substantial benefits to the participating members.

H. V. Neece of North West Missouri State Teachers College was chairman for the continuation of the "Back to Purchasing" panel discussion. The first topic concerned science laboratory equipment and supplies, with Lou Baker of the University of California as leader. Special interest was shown in his remarks on the centralization of microscopes for purchase, maintenance, and issue as required, rather than placing such equipment directly under the supervision of the using departments. It has been demonstrated that systematic maintenance made possible by this system has increased the service life of the instruments by as much as 25%, and it is possible to charge them out to departments or for student rental at one-twentieth of cost, plus service charge. The experience of other schools bears out this statement. To date this applies only to teaching microscopes, and not to special medical and research equipment.

Another means of effecting large savings is the purchase of many chemical supplies in bulk, to be repacked and issued in small quantities. Savings up to 50% may be made, including all cost of packages and labor.

E. H. Eisenhardt led the discussion on office machines and supplies, stressing the point that the buyer's thinking must be projected in respect to standardization and the selection of particular equipment even though it may still be hard to get exactly what is wanted. One of the chief advantages of standardizing on one make of machine is that

the servicing problem is greatly simplified. Experiences were interchanged on the relative merits of fanfold and snapout forms, and on the newer types of electronic sound duplicating equipment.

J. E. Doxey of Duke University discussed the paper situation. He stressed particularly the advisability of quantity purchases to secure the best prices, and the necessity of watching prices and mark-ups closely in current markets. As a general policy, he commended buying as close to the manufacturing level as possible within the established channels of distribution.

A. C. Burke of the University of Iowa declared that the principle of centralized purchasing is just as applicable to foods as to other items of supply, but that local conditions have greater weight since they vary widely and market areas for perishable foodstuffs are limited. The responsibility for food purchasing should be assigned to a competent person who can spend the necessary time to do the job properly and be available for prompt action that is frequently necessary.

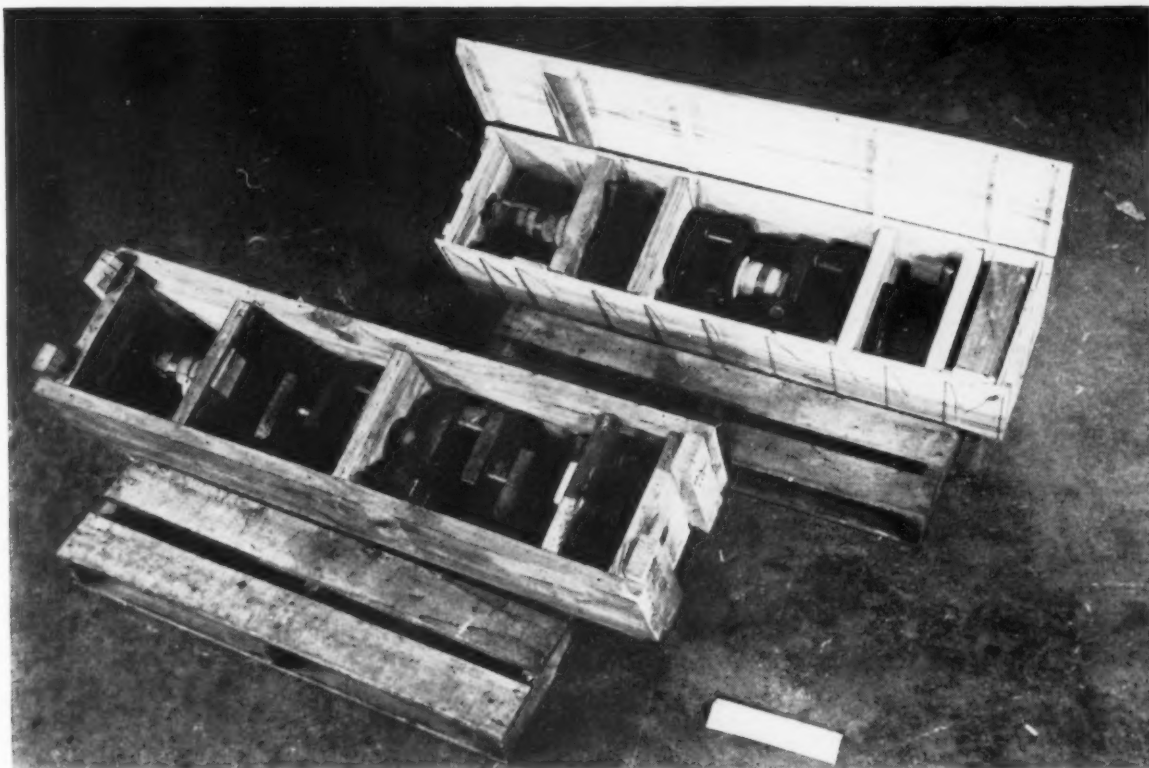
President's Banquet

The inaugural banquet on Friday evening was preceded by a reception, at which John Goodwin and Robert Burke of Creighton University were hosts.

V. J. Skutt, Vice President of the United Benefit Life Insurance Company, presided at the banquet. Retiring President Ritterskamp introduced and installed the officers for 1947-1948: President Gerald D. Henderson of Vanderbilt University; Vice Presidents Charles Off of University of Omaha, H. B. Bentsen of George Williams College, and The Rev. J. Leo Sullivan of Holy Cross College; Treasurer H. W. Loman of Pennsylvania State College; and Executive Secretary Bert C. Ahrens. He presented the gavel to Mr. Henderson, who responded briefly, graciously, and thoughtfully, expressing the hope that the coming year will see increased appreciation and prestige for the purchasing function as a part of college administration, and that EBA will make a definite contribution by service to this end.

An unannounced feature of the program, that met with enthusiastic approval and applause, was the presentation to Boys Town of a fund that had been voluntarily contributed at the luncheon meeting in appreciation of the splendid work being done
(Please turn to page 329)

PACKAGING AND MATERIALS HANDLING



Wirebound box for export shipment of crankshaft. Tare weight 58#; displacement, cu. ft., 10.61; shaft is held in position by blocks shaped to fit journals.

● **By George E. Henry**

Digest for industrial purchasing agents of varied subject matter presented at Industrial Packaging and Materials Handling Exposition held in Chicago

IT is not difficult to measure the importance to industrial purchasing agents of developments at many of the numerous industrial conventions that are being held constantly throughout the nation. Not only do these meetings constitute industry experience exchanges and furnish up-to-minute information on procedures and new developments, but they are the source of invaluable background material that is a vital part of the information and knowledge that makes for proficiency in purchasing.

Such a meeting was the Second Annual Industrial Packaging and Materials handling exposition recently held in Chicago under the auspices of the Industrial Packaging Engineers Association of America,

of which C. J. Carney, Jr., son of the late C. J. Carney, Director of Purchases for the Cudahy Packing Company, Chicago, is managing director.

This convention, with an attendance of approximately 4500, and a practical packaging materials and materials handling equipment exhibit, was dedicated to the broad theme of Better Packaging, Better Handling and Better Shipping. Though much of the data presented at the meetings was of a technical nature and for the information of packaging engineers, materials handling experts, and manufacturers of packaging and shipping containers and materials, there was much of interest for industrial purchasing agents as the buyers of these ma-

terials and as the men who in thousands of industrial and manufacturing plants are in key position to pave the way for definite economies by analysis of their company's shipping and handling problems as a phase of "Purchasing for Profit."

Loss and Damage in Transit

One of the dominant subjects referred to by various speakers and the subject of a discussion by C. E. Johnson, chairman of the Western Association of Railway Executives, was "Waste and Extravagance in Loss and Damage of Freight in the Transportation Industry."

Mr. Johnson stated that in 1946 loss and damage claim payments by the rail carriers amounted to \$94,000,000—almost five times the



Self-explanatory view of the results of poor export packaging, at Port of Manila.

amount paid in 1940. It is estimated that the loss and damage claims settled by railroads, trucking companies and other forms of transport now approximate \$150,000,000 a year, to which should be added the cost of investigation and adjusting claims. However, as purchasing agents will recognize, lost and damaged freight involves many other intangible costs and headaches from a procurement and production standpoint, aside from those incurred by the sales department and the loss of customer goodwill.

The opportunity for constructive service by men in purchasing, in the matter of good packaging lies in the fact that but few companies have sufficient business volume or variety in packing requirements to warrant the employment of a packaging engineer; and the all important fact that top management heretofore has given product packaging and shipping containers scant attention.

This is reflected in statement by W. B. Lincoln, Jr., technical manager, Inland Container Corporation, Indianapolis, Inc., who stated "I am continually amazed at the failure of industrial managers, engineers and others to show any awareness of the packaging problem. I am not convinced that top management, the engineering fraternity generally, or educators are universally mindful" that it is an economic waste to spend time and money to design, manufacture and package a product, if through lack of attention to proper packing, products are damaged or rendered useless. "This is particularly true of the smaller company",

he continued, "which is unable to devote to this subject the specialized attention it needs". Mr. Lincoln stated that it is no longer sufficient to delegate container design as a sideline to some clerk in the traffic department, a buyer or a shipping clerk as has been done in all too many instances in the past. As a matter of fact, he characterized packaging as an engineering department function, to receive attention concurrently with the design of the product itself.

In this connection, S. L. Swenson, product engineer, Kimberly-Clark Corp., Neenah, Wis., declared: "We feel quite strongly that shippers have not given enough attention to, or realized the over-all or comprehensive costs incurred through mediocre or poor packaging."

Purchasing Agents will recognize in the foregoing, substantiation of the statement by President George W. Aljian of N.A.P.A., in his talks before purchasing groups, that purchasing agents should devote more time to the subjects of packaging and materials handling. The fact that they have intimate contact with sources of supply for packaging materials, are acquainted with the services available from suppliers, and have contact with industrial packaging engineers and package designers, places them in strategic position to procure packaging that will protect its contents while withstanding the knocks, bumps, drops, pressures and other hazards of shipping, both domestic and export.

The business sessions of the Chicago meeting were devoted to meet-

ings on varied specific subjects, such as Cleaning, Corrosion Prevention and Protective Wrapping; Materials Handling; Folding Cartons and Set-Up Boxes; Postwar Export Packaging and its Relationship to Marine Insurance; Principles of Protective Packaging for General Merchandise Distribution; Corrugated and Solid Fibre Boxes; Wood Containers; and the banquet meeting at which the principal speaker was C. E. Johnson, chairman of the Western Association of Railway Executives.

Corrosion Prevention

Norman E. Hathaway, director of technical services, The Davis Chemical Corp., declared at the conference on corrosion prevention that "The supply and demand picture is at the present beginning to equalize. When the market becomes entirely a buyers' market, the problem of storage in warehouses and on the dealers' shelves is introduced. Among the results to be accomplished through proper packaging is the insurance against corrosion which applies not only to rust, but to all forms of damage either from air, moisture, vapor, or weathering effects."

"In the winter, your packaging room may be 65-70° F., and the relative humidity generally averages around 50%. When an item is packaged in this condition, it is not unusual to set it out on the shipping platform. The temperature outside is 30-40° F. The relative humidity inside the package rises to a dangerous point; condensation results. Another good example of how humidity works is the shipment that arrives in the winter time. You bring it into your shop where the temperature is considerably higher than outside. The item, being cooler than the dew point of the inside air, 'sweats' and moisture forms on the surface."

Mr. Hathaway stated that the use of silica gel on the interior of shipping containers as a moisture absorbent, because of its dependability and cleanliness, would be more extensively used than at present. He said that several major machine tool manufacturers are using a modified form of AN packaging and packing specification Method II for packaging machine tools. It involves laminated kraft and burlap paper sprayed with Protek-Coat asphalt as a barrier. The base of this material is put over the normal skid and the machine put on it. Silica gel is hung at various points on the machine

and the barrier is sewn or stapled around the machine. The barrier is then sprayed with the asphalt and, if deemed necessary a wooden case is built around the barrier. The moisture vapor transmission of this laminated kraft paper burlap, sprayed material, is 0.03, and the cost for labor and material is approximately \$0.12 per square foot of barrier.

Another development mentioned by Mr. Hathaway as "an economical approach to protective packaging" involves metal foil laminated into the body of a fibre drum. The Container Co., in conjunction with the Davison Company developed the unit as an economical barrier. At present its main use is for the shipment of bright wire, or piano wire. The coils are placed in the drum, bags of silica gel being placed in the container to absorb the inclosed moisture, and moisture permeations. The results, he said, have been excellent.

Cushioned Packaging

S. L. Swenson, product engineer, Kimberly-Clark Corp., Neenah, Wis., injected the factor of "comprehensive cost" of packaging, at the meeting. Not only does this include material and labor costs, but such "indirect items as good will, your reputation with the customer, service and repair charges on damaged merchandise, etc." He declared that "industry can and must be educated to realize that through better over-all packaging, through more cushioning, and more thorough finish protection, that a lower cost of doing business results."

Mr. Swenson described five basic methods of using cushioning blankets or pads as a protective wrapping, namely:

Bracing: Bracing is a method of interior packaging to prevent movement of contents within the container and to distribute the weight to all of its faces. This method uses cushioning in conjunction with wood bracing, metal strapping, and corrugated board. It prevents scratches, press marking, and burns by coarse "holding" materials.

Blocking, often confused with bracing, is a method of wrapping irregularly shaped objects with soft resilient cushioning materials to block-out the voids. The resulting package is fairly regular in shape and comparatively easy to handle in a container. The distribution of shock is facilitated by passing the loading evenly through the article.

Flotation: This is a method of

completely protecting the article from shock and vibration by wrapping it in a thick cushioning material of sufficient thickness so that its wrapped shape conforms to the shape of the container. Used as flotation packaging, creped wadding *suspends* a product within the shipping package. It functions in the same way when used as an over-wrap for a container which is set inside an outer case for shipment.

Absorbent Packing: This is a specialized method of interior packaging designed for cushioning fragile containers of liquid. The desired results are adequate protective cushioning against shock plus rapid and thorough absorption of liquid in case of breakage or leakage at the closure. Certain types of creped wadding, and other wood fibrous products take up moisture quickly and have the capacity to absorb up to 16 times their own weight in liquid within 30 seconds. Such materials meet parcel post regulations.

Surface Protection: This method employs cushioning material to protect highly finished and delicate surfaces of wood, metal, plastics, glass, etc., from damage by contact with other materials or grit that may infiltrate into the package.

Mr. Swenson mentioned several new "and rather unusual uses" for creped cellulose wadding, viz:

The "Cush-On" steel strap, developed by the Grand Rapids Fiber Cord Co. This is steel strapping to which a cushion of creped wadding has been applied, for use where it is desired to strap directly against a strong but highly finished surface.

As a supplement to the "Cocoon" or sprayed package, creped wadding is dipped in a bath of vinyl resin. It is then cut into squares or pads which are applied to the sharp corners or projections of equipment which is to be sprayed with the "Cocoon" film.

Insulated Pack: Several important developments are now underway with major food producing houses, in which the high thermal resistance of creped wadding is expected to play a big part. Insulation of frozen meats, ice cream, and other foods, can be done quickly, cheaply, with the highest degree of sanitary protection, by the use of creped wadding.

Air Cargo: Creped cellulose wadding weighs but 2.5 lbs. per cubic foot, making it ideal for packing and cushioning air shipments.

There were several interesting papers presented under the general subject of Materials Hand-



NORMAN L. CAHNERS
Materials Handling Laboratory

ling, including a paper by W. E. Braithwaite, Division of Simplified Practice, U. S. Department of Commerce, National Bureau of Standards, Washington, on "Simplification and Standardization of Containers and Packages for Improved Materials handling" and one by J. W. Cockrill, division storekeeper, Illinois Central Railroad, Centralia, Ill., on "Applications of Fork Trucks and Pallets in Railroad Operations."

Speaking on the subject "Past and Future of Modern Materials Handling", and industry-wide unitized loading, Norman L. Cahners, president of Materials Handling Laboratories, stated that industry's materials handling movement is in the individual, intra-plant stage. "It is in the expensive phase of the movement because it involves the purchase and installation of equipment," he said. He declared that "the savings which result from mechanization on a local basis are as pennies compared with the dollars that can be saved when the handling methods of individual plants are integrated with the handling methods of other plants. And the wonderful part is that the really big savings are realized at no additional cost."

Mr. Cahners said that those companies which are keeping themselves in a position to participate in the successive stages of progress being made in materials handling, will constantly multiply their savings, while companies that think only of present and local requirements are hamstringing themselves for the future.

Commenting upon the need for materials handling standardization from a national standpoint, he said that there is an increasing awareness of the need for standardization, and that such standardization is more

vital from an inter-plant handling standpoint than to intra-plant handling. He specifically mentioned a pallet interchange service developed by the Lawrence Universal Pallet Exchange (1 No. La Salle St., Chicago) as a means of overcoming one of the major obstacles to economical handling of inter-plant or inter-station shipments.

"Other indications of the fact that inter-station shipments of unit loads are coming are: (1) Continued research of the large strapping companies to perfect unit loading and palletized carload bracing; (2) Development of new types of handling equipment designed specifically to facilitate the loading and unloading of palletized cars and trucks; (3) Modification of highway truck and freight car floors to enable them to withstand the concentrated weight of mechanical handling equipment; and, (4) Lobbying which is aimed at securing dunnage rates for pallets.

These factors he defined as a few of the actual stepping stones whereby industry will move on to the next phase of its materials handling movement. "All that remains is to keep abreast of the latest developments so that we will not only recognize the stepping stones but more important that we will be in a position to take advantage of them as they appear," he concluded.

"Unit-Loading" was the subject



J. G. BUCUSS
Manager Strapping Division
Acme Steel Company

of paper by J. G. Bucuss, manager, Strapping Division, Acme Steel Company, Chicago. Mr. Bucuss defined "unit-loading" as strapping together two or more packages into a larger unit inside the railway car in such a manner that the larger unit is permitted to move under shock or impact. As a result of this freedom of movement the force of the impact is reduced about 50%.

"While the development of unit-load is comparatively new", he said, it has saved such industries as steel and paper alone thousands of dollars in materials, time and labor that were formerly used for bracing purposes. The unit-load method of bracing is being applied daily for the safe delivery of such commodities as chemicals, food products, and beverages in glass containers, as well as radios, refrigerators, enameled stoves, furniture, automobile storage batteries and hundreds of other products. Through the use of skids or pallets and the floating load method of bracing, it has been possible to entirely eliminate individual containers in which the product was previously packaged. Most important to shippers, as well as railroads and receivers, has been the reduction in product damage claims."

Mr. Bucuss spoke of the use of the floating load principle in the handling of lumber products. "When lumber is loaded in a box car (approximately 25,000 board feet) it requires 24 man hours or more to complete the unloading. This is just the beginning because if you are an industrialist you will have two or more handlings. Retailers have a total of at least four handlings before it reaches the job. The same 25,000 board feet of lumber huddled and braced with steel strappings on a flat car can be unloaded by lift truck or crane in two man hours or less. The units of lumber can be assembled in size and weight to fit available mechanical handling equipment. Relative savings can also be effected at the point of loading.

"It is possible that eventually the lumber industry will cut most of its lumber to specified dimensions, then tally, bundle and strap it. This would eliminate waste and freight charges now paid on that waste, and quite important, it would permit reduced inventories.

"It has been estimated by some of the larger lumber companies that the overall cost of handling could be reduced 20 to 50% under this plan of distribution. Many products are subject to the same analysis and study with possible greater savings."

Speeds Merchandise Flow

James L. Flaven, materials handling engineer, Montgomery Ward & Co., Chicago, stated the modern materials handling should (1) move mountains of merchandise rapidly, (2) make it possible to utilize warehouse space to the utmost advantage; (3) eliminate back-breaking

jobs; and (4) reduce damaged merchandise to a minimum.

Speaking from the standpoint of his company, he continued: "Can we adopt any one system of hand-



JAMES L. FLAVEN
Materials Handling Engineer
Montgomery Ward & Company

ling to fit all of our needs? Obviously not. We must analyze our major lines of merchandise and its movement. The pallet and fork truck will handle a good portion of the tonnage in our warehouse operations. Sometimes I think we are inclined to view this equipment as a "cure all." It isn't—but used intelligently, it can be the nucleus of a sound handling program. We will continue to use the two-wheel hand truck and the four-wheel platform truck. We are supplementing this equipment with belt and roller conveyors, both portable and stationary, monorail systems, and other mechanical aids required to fit a particular installation."

"One very effective way to speed the flow of merchandise, is to introduce the unit load," he said. "Unlike the condition existing several years ago, we now find many manufacturers equipped to make pallet shipments and very anxious to cooperate. The unit load will reduce our car unloading time, make the checking of loads easier and faster, and will lower the time involved placing merchandise into stock. Our studies indicate a substantial number of articles can be shipped in this manner. The resultant savings in packaging costs, time, and damages will be most favorable.

"The amount of merchandise damaged in transit or in the warehouse can and must be reduced. The continued shortage of adequate packaging materials must be offset by improved handling methods. Merchandise damaged in transit is

not only a loss to the carrier but we lose the profit and the sale of that article. If we damage the merchandise in our own warehouse operation, the company suffers a total loss, less any possible salvage value. By reducing the human element in our handling methods we can show a corresponding reduction in damage losses."

Mr. Flaven suggested the use of box pallets, or something similar, for handling diversified loads of packages of varying size and shape.

In conclusion, he said: "If your company is planning the construction of new plants or warehouses, be sure the building is planned around your material handling program. Don't bring your material handling engineer in after the building is completed."

Boxboards

John F. Halliday, industrial process consultant of Elkhart, Ind., declared that few packaging materials offer such wide possibilities of infinite variation in cost or kind as those offered by folding and set-up boxboards. "Probably no other available packaging materials offer so much of physical protection combined with display value at so low a cost", he said.

"A great deal of progress has been made during the war years in the methods used for sizing boxboards against deterioration due to wetting by water. Many new methods for coating board at lower cost are now in production. Improved printing quality has resulted through the use of coated boards. Improved methods of manufacture and better production methods introduced into the box shops have produced packages with considerable resistance to the passage of atmospheric water vapor.

"The economic advantages which can be obtained by knowledgeable specification of boxboard grades, basis weights and calipers are potentially tremendous," he said. "Unless this is based upon a testing program where the test results are on an accurate quantitative basis and unless the interpretation of these results is done in the light of broad general experience with all phases of board manufacture and carton manufacture, these advantages cannot be realized.

"Those having a sufficient number of such problems may find it to their advantage, perhaps, to establish their own laboratory testing facilities. Unless one is prepared to staff his laboratory with not only



Further evidence of the need for adequate packaging for the protection of export shipments. The light wooden boxes were inadequate for heavy theatre seats.

he had occasion to buy a fishing well-educated but thoroughly experienced men in this field, he must be willing to wait patiently for commercially worthwhile results. Whether the volume of such work appears to justify the establishment of a laboratory or not, a few competent general service laboratories do this type of work and can be retained for this purpose. When well staffed and equipped, such organizations can guide a program toward savings which will vastly outweigh the cost of such a program."

Folding Cartons

"Folding Cartons" was the subject of paper by F. V. Powell, president of the Lindley Box and Paper Company. "Don't be too hasty in your packaging decisions", he cautioned; give every requirement full consideration consult an expert and give the proposed new box a thorough check-over before taking final steps. A package that clicks is your best salesman—particularly now with the growing tendency of self-service in retail stores.

"Regarding printing: If half-tones are wanted, don't use too fine a screen—possibly a 100-line screen for clay coated and other very smooth boards, and as coarse as 65-screen for the rougher materials. There are many things to be considered in making printing plates for carton work, and it is so easy to make plates wrong. Some engraving companies are not too familiar with plates for this purpose. It is well to have your box manufacturer or his engraving house make

your drawings and engravings. Recently we had a case where a customer wanted to furnish his own plates and he sent us a new \$500 set of engravings to be used on his order but the plates had to be remade as the original maker was evidently not familiar with folding box work and had not taken into consideration the different angles necessary for economical production.

"Grade and weight of paperboard is an important consideration. The grade depends much on the nature of the printing. The more elaborate art work requires a smooth hard finished sheet to bring out the better ink effects. The weight of the board required depends on the weight of the contents to be packed and protection necessary. Never sacrifice the carrying qualities of the box by skimping a few points in the caliper of the board. It is poor economy.

"If a number of items are to be packed in the same size carton, naturally some will fit loosely and others a little snugly. In such cases a minimum number of sizes is preferred. It would be well to ask the aid of your box counselor in measuring your products. It is not so easy to determine minimum dimensions, particularly on irregularly shaped articles. Where only one item is to be considered for only one size carton, make sure it is a good fit."

Commenting upon the waste inherent in making over-size packages, Mr. Powell said that recently he had occasion to buy a fishing reel which was packed in a tele-



ALVIN S. ROBERTS
Marine Service Department
Insurance Co. of No. America

scope style box which was $\frac{3}{4}$ inch on all sides of the sheet for both the cover and the container. In addition, if twelve of these units were packed two rows of six in a shipping container, it would mean a waste of $1\frac{1}{2}$ " in the height of the shipping case or a loss of about 10%.

Set-Up Boxes

G. S. Denning, vice president in charge of sales, W. C. Ritchie & Co., Chicago, declared that his experience indicates that the average person knows little or nothing about set-up boxes and could not identify one if required to do so. "The consuming public encounters set-up boxes in one form or another every day," he said. "They are seen as packages for playing cards, face powder boxes, and most gifts bought at retail will be packaged in set-up boxes. The latest addition to the set-up box field is the transparent package made from rigid sheeting, either cellulose acetate or ethyl cellulose."

A basic reason for having packaged merchandise with plenty of eye-appeal is found in figures released by the Department of Commerce which reveal that retail purchases in 1946 totalled \$97 billion. Women purchased 75% of these goods, he said. Nationwide surveys have revealed that impulse buying is very high among women. These surveys reveal that of all purchases made by women, 62% of them are unplanned when entering the store. This means that three of every five articles purchased are selected by the buyer when seen in the store.

Commenting on box costs he said, "Do not expect any return to 1939 figures. Your package costs are higher and will remain much higher than 1939 in the foreseeable future."

Purchasing agents will be interested in his comment to the effect that "We have about 'five minutes' left of our seller's market, and then we are going to have to go back to work and do a real job in the toughest kind of competition. Properly designed and correctly manufactured packages can help you."

Marine Insurance

Alvin S. Roberts, manager, Marine Service Department, Insurance Company of North America in a talk on "Post War Export Packaging and its Relationship to Marine Insurance" stated that the insurance requirements of today's shipper go far beyond his desire to recover for General Average losses. He wants protection also against any damage to his cargo resulting from storms and other perils of the sea, and in addition, usually wants protection against such hazards as theft, pilferage, non-delivery, fresh water damage, breakage, leakage, cargo sweat, ship's sweat, oil damage and contact with other cargo. As still other misfortunes may befall his cargo, he frequently wants coverage against all risks of physical loss or damage from any cause.

"All of these coverages are usually available from the marine underwriter at a price.

"It should be noted that losses from all of these "named perils" are of a preventable nature, and can be minimized or eliminated by the manner in which the merchandise is packed.

"The exporter who foresees the transportation hazards and provides intelligent packaging protection against their effects, will avoid insurance penalties. The exporter whose packaging methods are inadequate is bound to face the inevitable losses which will ultimately be reflected in his rates. In fact, where his preventable losses are too frequent and costly, he may find it most difficult to obtain broad coverage at any rate.

"No insurance, be it life, fire, casualty or marine can afford to show a loss to its underwriters over a period of time. The exporter who carries his own open policy is in a preferred position to influence his insurance costs by utilizing packaging methods which are designed to keep his preventable losses at a minimum. This for the reason that his policy rates and conditions are largely controlled by his own loss experience.

"The shipper whose packing is of such a nature that his shipments

are repeatedly suffering losses which the underwriter must pay has no one but himself to blame when he discovers that his insurance rates are higher than those of his competitors."

Export Packaging

In a review of conditions at important ports throughout the world Paul Amundsen, editor of *World Ports*, said: "When your product arrives at an American seaport for shipment abroad, it is:

(1) Unloaded from the delivering land carrier; (2) enter temporary storage to await the ship; (3) Move to shipside; (4) Ship's gear puts it in the hold; (5) It is moved to a stowage point in the hold; (6) It is stowed.



PAUL AMUNDSEN
Editor, *World Ports*

"The same thing occurs in reverse at the port of destination abroad, and thus for the very simple cycle of port handling your container undergoes some 12 port handlings per shipment. This is the bare minimum. There can be a lighterage movement, several temporary storage handlings, shipside handlings, or stowage handlings, depending on the current conditions at either port.

"In our American seaports these operations are performed under the most favorable conditions to be found in the world today. Though we too have some pilferage and some congestion, our handling is generally efficient and modern.

"On the other hand, conditions at ports abroad at present vary from fair to almost disastrous, and it can be fairly stated that when an export shipment leaves our shores today, it will not again see favorable port conditions."

Reviewing undesirable conditions at ports throughout the world, Mr. Amundsen stated that the Port of New York, with its high standard of living and one of the best police forces in the world, has seen fit to establish a Bureau for the Suppression of Theft and Pilferage, and to employ a staff of paid experts for full time attention to the problem. "If we have to go that far, what must things be like in those countries where the importer's political affiliation is the ruling factor on whether his goods spend hours or months going through customs, and where the smuggling concession is a political plum passed around by the parties in power?" he queried.

"Each destination should be considered as an individual problem. In shipping abroad today, I urge you to waterproof it; overpack it in wood; steel strap it; and hope for the best."

Protective Packaging

At a panel forum on "Principles of Protective Packaging for General Merchandise Distribution", R. E. Farney, Spiegel, Inc., chairman, was critical of the "traditional penny-wise pound-foolish packaging practices" that give birth to flimsy packages that will not hang together. The panel members, made up of representatives of Sears, Roebuck & Co., Aldens, Inc., Spiegel, Inc., and Butler Bros., reviewed the five principles of protective packaging which include Surface Protection, Compression Resistance, Vibration and Impact Absorption, Anchorage and Blocking, and Maintenance of Form or Closure Insurance.

J. P. Corcoran, manager of package engineering, Alden's Inc., defined standard methods for reducing impact, as follows:

Air Spacing: This involves the use of corrugated insert sheets so formed that pockets of air separate certain portions of the article or the entire article from the outer container, taking advantage of the cushioning qualities of the corrugating medium. It is best suited to light weight items under 50 lbs., and where good bearing surfaces are present.

Spring Cushioning: This method is accomplished by accordion folds of corrugated board bearing evenly against strong sections of the item with the tendency to reduce shock gradually. There should be sufficient thickness of spring so that adequate air space will exist between the folds, as well as the pad and the



Cartons get rough treatment in export shipping.

carton. The spring pad should be scored to provide good load distribution.

Semi-Solid Cushioning: This involves the use of loose excelsior, cellulose wadding, excelsior pads, flexible pads, foam rubber, mineral wool, etc. Mr. Corcoran said that when using materials other than industry formed sheets, care should be taken to provide adequate cushioning thicknesses on all fragile surfaces.

Suspension: This method of cushioning is best when an article cannot withstand direct impact through the outer container. A common application of this type of packing is the use of wood forms or cradles securely fastened to the basic structural parts of the article. Steel strapping can be used to suspend the item from one side of the container. Also, there is limited use of coil spring in suspending certain very fragile items.

W. W. Lavery, Spiegel, Inc., defined Surface Protection as the application of materials to prevent abrasion, corrosion or soiling.

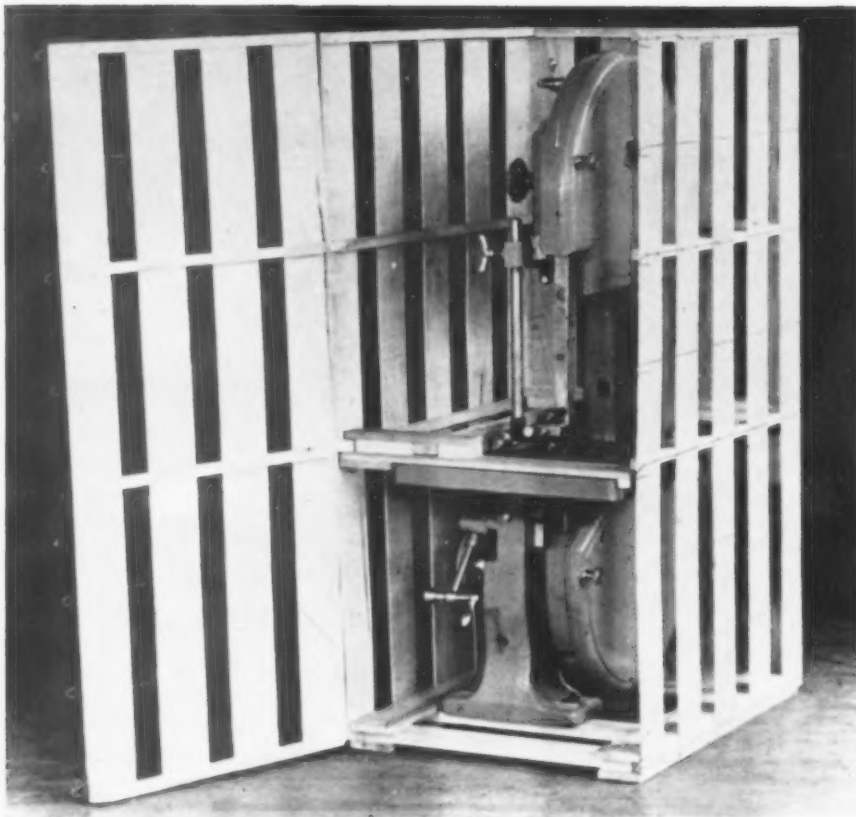
"There are a great many materials which are used to prevent abrasion, corrosion or soiling. These include specialty papers such as waxed, oiled, greaseproof and glassine papers, and pads of various types—excelsior, shredded paper, molded chip, plain kraft paper, cellulose wadding, burlap, and various corrosion preventives. To protect a furniture finish, for example, he said the application of material should be such as to prevent friction between the surface and other inner packing or the container. A 30-lb. basis

weight paper can work wonders when properly applied."

Commenting on maintenance of form-closure, he said that one of the most common defects in containers is inadequate or improper fastenings. Fiber containers should have firm flap closures; wire-bound boxes should have close control over the wire closures, and likewise the nail fastenings in wood and wood-reinforced containers; staggered and adequate nailing is a prime factor. Application of auxiliary aids such as steel strap or wire, rope or other materials will help in applying the closure insurance principle.

Export L&D Claims

A. V. Plotner, president of the General Traffic Service Co., Inc., New York, an organization whose function is to assist insurance companies in the reduction of losses by making carriers or other third parties conscious of their responsibilities, declared that packing is of such importance that it should be the chief assurance of delivery at destination. A poorly packaged or packed product must eventually bear a higher cost of insurance. "From the complaints we have received from the steamship companies, it appears that their chief objection is the use of fluted or corrugated fibreboard cartons," he said. "The contention is that the corrugated fiberboard is subject to moisture absorption which weakens the rigidity and stacking quality of the container so that it cannot be stowed properly, tends to break down, with the result that there is damage to the goods or loss of the contents. Another objection



Wirebound crate for domestic shipment of bandsaw.

to the use of cartons is that they are improperly sealed. Gummed tape is often applied in a cold warehouse and the adhesive quality of the glue is impaired. When the shipment passes through a warmer climate the glue loses its hold, with the result that the package opens up and is an invitation to easy pilferage and damage."

Crating, he said, should not present a problem if properly applied. There is a tendency not to crate enough; there is lack of bracing and buffers, and sometimes the crate is not tight enough.

Wooden boxes, he said, are regarded by carriers as the most acceptable and desirable type of export packing. However, there are many complaints due to the use of unseasoned wood, use of too thin wood, and lack of interior bracing where necessary.

Another cause of complaint is the failure to protect contents by proper interior packing, the use of which is contingent upon handling, route to be taken, and conditions and methods of delivery at destination. Domestic cartons, he said, should never be used in export trade. Cartons should be stapled, and metal strapping should be used.

Frank W. Green, Packing Consultant, Springfield, Mass., declared that adequate packing is the first

step for the prevention of pilferage. Also, he said shippers should not identify valuable contents by name, such as "radio", "soap", etc., or trademarks, as such indications are a direct invitation to pilferers. He also urged that shippers use correct consignee markings, citing a \$25,000 machine that was found on a foreign dock without consignee's names, initials or other identification. Considerable amounts of cargo are lost due to improper markings, he stated. Blind or code consignee markings can be used, provided port marks are clear.

Mr. Green cited interior packing and fasteners of vital importance in the application of export packing—"more important in many instances than the container itself." Interior packing must be approached with the idea that the container is not only going to be turned over on its end and tops, but that it will be dropped many times on all its faces.

"It isn't common sense to pack 200 pound test cartons to the limit for over-seas shipment. It is a waste of good cartons and of contents. V-Board cartons do an excellent job when correctly used. X board cartons with sleeves are fair substitutes for many destinations. With great care and under certain conditions, high test cartons may work out well if double strapped in

opposite directions. Difficult loads must be avoided in cartons of any type. Average loads must be planned with great care."

Many things point to a continuation of shortages and high prices in the packing and shipping industry", stated Henry A. Wolsdorf, Director of Sales Research, Package Research Laboratory, Rockaway, N. J. "I believe it is the consensus that minor adjustments will occur from time to time but they will affect the over-all picture slightly.

"The fundamental principle upon which the design of wirebound boxes and crates is based is to obtain strength from steel wire which



HENRY A. WOLSDORF

Package Research Laboratory

costs less than equivalent strength obtained from wood. The principle establishes economy in the use of wood. It also produces a shipping container that is nearly always lighter than other types of wooden containers, and thereby establishes economy in transportation.

"The principle of substituting steel wires for wood, wherever possible, incorporates into the design of wirebound boxes and crates the property of resiliency. The relatively thin boards used in the box produce an engineering structure that possesses a high degree of resiliency. Because of this resiliency, only part of the forces applied to the box during handling and transportation are transmitted to the contents. The remainder of the force is absorbed in the deflection of the box. If a low degree of resiliency is desired, this characteristic can be built into a wirebound box. Many products, because of shape, weight, finish or fragility require blocking or bracing in the box or crate. The wirebound construction is well suited for these conditions."

PRODUCT DELIVERY INFORMATION

SOME three-hundred manufacturers collaborated in the preparation of the following report giving possible delivery time on 150 or more items of industrial equipment, products and supplies.

Specific attention is called to the fact that the indicated delivery time on "Standard Products" and on "Special Order" products, is in many instances the range of delivery time reported by several manufacturers. We shall be glad to forward to those manufacturers requests for more specific information.

Reports from Purchasing Agents manifest that they find this service timely and valuable. The information enables requisitioning departments to estimate their requirements sufficiently in advance to assure delivery when material is needed; it is an aid in eliminating rush orders which may or may not get material when wanted; and it is a guide to determining minimum inventory based on lead time and material use.

Your suggestions as to how the report can be made of more value to you are invited.

DELIVERY TIME	
Standard Products	Special Order
ADHESIVES	
2 days	7 days
AIR EQUIPMENT	
<i>Air Motors</i>	
Stock	2 weeks
2 weeks	<i>Compressors, Below 30#</i> 2 months
2 weeks	<i>Pumps, Vacuum</i> 2 months
AUTOMATIC CONTROLS	
Immediate — 3 weeks	1 to 6 months
BEARINGS	
<i>Ball Bearings</i>	
3 to 4 months	4 to 6 months
3 to 4 months	<i>Bearings, Roller</i> 3 to 6 months
Stock	<i>Bearings, Bronze</i> 12 to 14 weeks, depending upon type and quantity. 10 to 24 weeks, depending upon type and size.
<i>Pillow Blocks</i>	
9 months	12 months
BELTING	
<i>Leather</i>	
Stock to 3 weeks	Week to 2 weeks
Stock	<i>V-Belting, Leather</i> 3 weeks
Stock	<i>Stitched Canvas</i> 1 to 4 weeks
2 weeks	<i>Endless Woven</i> — —
Stock	<i>Woven Cotton</i> 2 to 4 weeks
BOILERS	
<i>Steel, Heating</i>	
Immediate	— —
BRASS RODS	
Stock-30 days	30 days
BRONZE PARTS	
<i>Extruded Bronzes</i>	
2 to 3 weeks	<i>Heavy Bronze Castings</i> 3 to 4 weeks
2 to 3 weeks	<i>Light Bronze Castings</i> 4 to 6 weeks
3 to 4 weeks	<i>Medium Bronze Castings</i> 4 to 6 weeks
3 to 4 weeks	<i>Bronze Rods</i> 4 to 6 weeks
Stock to 90 days	

DELIVERY TIME	
Standard Products	Special Order
BRUSHES	
<i>Power Driven</i>	
2 to 4 weeks	4 to 10 weeks
2 to 3 weeks	<i>Maintenance Brushes</i> 4 to 6 weeks
CHAIN	
<i>Steel</i>	
2 to 7 months	2 to 7 months
CHEMICALS	
<i>Ammonia, Cylinder Anhydrous</i>	
Immediate	
<i>Aqua Ammonia</i>	
Immediate	
<i>Carbolic Acid</i>	
Tight: Annual production committed under contract. Shipments restricted to customers' monthly quotas.	
<i>Nitric Acid</i>	
* * Same	
<i>Sulphuric Acid</i>	
* * Same	
* * One company reports that shortage of carboys has hampered deliveries, rather than acid shortage.	
<i>Formaldehyde</i>	
Very short supply. Cannot accept additional orders.	
CLEANERS	
<i>Metal</i>	
10 days	— —
6 to 8 weeks	<i>Parts Cleaners</i> 8 to 12 weeks
COATING EQUIPMENT, INDUSTRIAL	
<i>Baking Ovens</i>	
6 weeks	10 to 24 weeks
6 to 16 weeks	<i>Booths, Spray Painting</i> 12 to 16 weeks
12 weeks	<i>Paint Spraying Equipment</i> 24 weeks
CONTAINERS	
<i>Bags, Paper</i>	
30 - 60 days	60 - 90 days (also, spl. orders not accepted)
<i>Boxes, Corrugated</i>	
14 weeks	8 to 13 weeks
8 weeks	<i>Boxes, Solid Fibre</i> Spl. orders not accepted
12 weeks	<i>Boxes, Fibre, Cleated</i> 2 to 5 months (also, spl. orders not accepted)
<i>Boxes, Paper, Folding</i>	
Some prompt	6 to 7 months
N.P.B.M.A. reports mills are not taking new accounts, wartime allotments to customers being still in effect.	

DELIVERY TIME	
Standard Products	Special Order

8 weeks	Cleated Plywood, Shook	6 weeks
— —	Boxes, Wirebound	1 to 4 months
— —	Boxes, Wooden	2 months
— —	Crates, Wirebound	3 months
— —	Crates, Wooden	2 months
2 to 3 days	Cooperage Slack	2 to 3 weeks
1 week	Nail Kegs	2 weeks
1 week	Half Barrels	2 weeks
2 to 4 weeks	Cooperage, Tight	12 weeks

CONDENSER APRONS

— —	Chrome	30 days
Stock	Cut and Whole Sides, Lace	— —

COOLANT SYSTEMS

Immediate	2 months
-----------	----------

CORDAGE, FIBERS, HARD

Manila, Sisal and Henequen

Receipts in 1947 will be half of anticipated unrestricted demands. Cordage Order M-84 controls the end uses. Sisal and henequen are purchased publicly and distributed equitably among processors of permitted products.

A greater portion of the Manila supply is imported privately; processors' inventories limited to 90 days.

ELECTRICAL

4 to 9 months	Cables, Wire	4 to 9 months
1 to 3 months	Cables and Wire	5 to 6 months
1 to 3 months	Wire, Insulated	5 to 6 months
3 months	Wiring Devices	6 to 8 months
1 to 5 months	Conduits, Flexible	1½ to 6 months
— —	Generators	12 months

60 weeks, slightly shorter on strictly standard	Motors, Polyphase 1 - 15 hp	
42 weeks	20 to 75 hp	
62 weeks	Up to 200 hp	
All fractional except aircraft 2 years	Fractional hp	

SWITCH GEAR

Breakers		Air	Oil
Up to 2.3 K.V.	45 weeks	45 weeks	
2.3 to 6.6 KV	85 weeks	45 weeks	
Over 6.6 KV	85 weeks	85 weeks	
Capacitors			
Up to 180 days, depending on rating of units desired in series parallel combination.			
Transformers (Distribution)			
1½ to 50 KVA — on allotment			
75 to 100 KVA — 12 to 15 months			
100 to 500 KVA — 15 to 18 months			
(Power)			
66 to 5000 KVA — 15 to 18 months			
5000 KVA and over — 2 years			

DELIVERY TIME	
Standard Products	Special Order

GASOLINE ENGINES

10 to 12 months	Air-Cooled	— —
-----------------	------------	-----

FASTENERS

10 to 12 months	Bolts, ¼" to ½"	Indefinite
4 to 6 months	Bolts, Larger	— —
10 to 12 months	Bolts, Stove	
Stock	Nuts, Self-Locking	
	Semi-Std. 45-60 days	
	Specials 60 days to 6 months	
12 to 16 months	Nuts, M/Scs Size	
6 to 8 months	Nuts, Bolt Sizes	
10 to 12 months	Machine Screw Nuts	
10 to 12 months	Machine Screws	
— —	Milled Specials	2 to 3 months
— —	Headed Specials	8 to 10 months
Stock to 6 weeks	Socket Head Cap Screws	6 to 8 weeks
Stock to 8 weeks	Socket Head Set Screws	8 to 12 weeks
Stock to 4 weeks	Socket Head Stripper Bolts	1 to 4 weeks
Stock	Socket Screw Keys	1 to 4 weeks
4 to 6 months	Rivets	
3 months	Washers	2 to 3 months
5 to 6 months	Wood Screws	— —

"One of tightest items; industry has tremendous backlog. If we were able to obtain raw materials, situation would ease rapidly. On milled specials can give 1 to 3 months delivery."

FELT PRODUCTS

4 weeks	6 weeks
---------	---------

FITTINGS

3 to 12 months	Brass, Bronze	— —
Stock to 90 days	Copper or Bronze Fittings, Solder Type	
Stock to 2 months	Tube Fittings	2 to 4 months
Small quantities	Malleable Iron	60 to 150 days
Stock to 60 days		
Large quantities		
60 to 120 days		
New accounts on application	Steel Tube Fittings	2 to 4 months
Stock to 60 days	Pipe Plugs	1 to 4 weeks
Stock to 4 weeks		

FURNACES

4 to 10 weeks	Heat Treating	8 to 32 weeks
4 to 10 weeks	Ovens, Industrial	8 to 32 weeks
— —	Metal Fabrication	2 to 6 weeks
Stock	Steam Traps	8 to 12 weeks

DELIVERY TIME	
Standard Products	Special Order

GAUGES

Immediate to 30 days	2" Pressure	60 days
Immediate to 30 days	2½" Pressure	60 days
Immediate to 30 days	2" Oxy-Acetylene	60 days
Immediate to 30 days	2½" Oxy-acetylene	60 days

GEARS

2 to 8 weeks	Differentials	6 weeks to 10 mo.
— —	Speed Reducers	9 to 10 months
— —		12 to 20 weeks

GRINDING WHEELS

— —	Vitrified	4 to 6 weeks
— —	Resinoid	4 weeks
(Finished stock, 2 to 4 days; semi-finished, 4 to 8 days)		

HOSE, FLEXIBLE, ASSEMBLIES

15 to 45 days		30 to 90 days
---------------	--	---------------

HOSE

Stock to 20 weeks	Molded, Braided	(depending on size and construction)
Stock to 6 weeks	Wrapped Hose	(depending on size and construction)

LEAD

2 to 3 weeks		4 to 6 weeks
--------------	--	--------------

LIGHTING EQUIPMENT

4 to 6 months		8 to 12 months
---------------	--	----------------

HORNS, HOWLERS, SIGNALS

10 to 20 days		30 days
---------------	--	---------

LUMBER

2 months	Creosoted	
2 to 3 months	Fir	Unobtainable
Immediate	Hardwood, Northern	
Delayed Delivery —	White Pine	
	Mills oversold	
2 months	Yellow Pine	
1 to 2 months	Cypress	Unobtainable

MATERIAL HANDLING EQUIPMENT

Stock to 4 weeks	Industrial Storage Batteries	
	Lead acid	6 to 12 weeks
1 to 4 months	Casters, Truck	3 to 5 months
4 months	Casters, Semi-Steel Plate	— —
3 months	Casters, Welded Steel Plate	
3 weeks	Assembly Conveyors, Belt	10 weeks
10 to 12 months	Conveyors, Belt	Indefinite
10 months	Conveyor Belting	10 months
6 to 9 months	Conveyor Belting, Rubber	6 to 9 months
12 weeks	Conveyors, Coal	25 weeks

DELIVERY TIME	
Standard Products	Special Order

2 weeks	Conveyors, Roller Gravity	6 weeks
	Light, Medium	
12 weeks	Conveyors, Sand, Gravel	25 weeks
6 weeks	Conveyors, Inclined Belt, Stationary, Horizontal	12 weeks
10 months	Elevators, Bucket	12 months
1 month	Elevators, Hand	4 to 6 months
6 to 9 months	Elevator Belting, Rubber	6 to 9 months
3 weeks	Elevators, Portable Hand	6 weeks
3 months	Elevators, Portable, Electric	6 months
2 months	Elevators, Electric	4 to 6 months
1 to 4 months	Elevators, Portable, Tying	2 to 7 months
— —	Pallets, Fork Lift	10 to 14 days
3 months	Platforms	4 months
1 month	Skids, Lift Truck	
2 to 3 months	Tractors, Gasoline, Industrial	2 to 4 months
1 to 14 months	Tractors, Electric, Industrial	2 to 16 months
6 to 12 weeks	Trailers	
1 to 3 months	Factory-Warehouse	10 to 24 weeks
	Trucks, Hand, 2 wheel	6 mos. — indefinite

LIFT TRUCKS

2 weeks	Lift Trucks, Hand	4 weeks
10 days	Lift Trucks, Electric	4 weeks
1 month	Fork Lift Trucks, Gas	2 to 3 months
1 to 2 months	Fork Lift Trucks, Electric	2 to 3 months
1 to 2 months	3000 to 4000 lbs. Fork	3 months
2 to 3 months	4000 to 6000 lbs. Fork	
45 days	6000 lb. Low-Lift	
10 weeks	Crane Trucks	
3 months	Platform Trucks (Stake-Rack)	6 mos. — indefinite
2 weeks to 3 months	Jack & Skid Systems	

PACKINGS

Stock to 7 weeks	Leather	3 to 7 weeks
— —	Synthetic Rubber	4 to 8 weeks
Stock to 2 months	Sheet Rubber	2 months
2 weeks	Oil Seals	12 weeks

PIPE

	Brass	
Raw material situation critical. 30-day-delivery on brass pipe does not indicate item is in free supply, but only that production is balanced to enable delivery or reasonable amounts. Could not handle new demands for this item. Can only quote deliveries on specific inquiries.		
	Copper	
Shortage 500,000 tons. It is reported that quantities of		

DELIVERY TIME	
Standard Products	Special Order

foreign copper earmarked for domestic use have been contracted for. Movement underway to suspend or repeal copper duty.

1 month	<i>Pipe, Fabricated</i>	Carload, 3 to 4 mo. LCL, 6 to 8 weeks
---------	-------------------------	--

3 to 4 months (depending on supply of copper from refineries). Tube mill production is very uncertain.	<i>Copper Pipe</i>	
--	--------------------	--

PIPING	
— —	<i>Exhausts and Blow</i> 1 to 3 months
3 months	<i>Steel, Welded, Riveted</i> Indefinite

PUMPS	
12 weeks No motor — 12 weeks	<i>Centrifugal</i> 20 to 30 weeks 24 weeks
	<i>Power Pumps</i> 24 weeks
16 weeks	<i>Pumps, Hydraulic</i> 24 weeks
24 weeks	<i>Turbine</i> 16 to 20 weeks
4 weeks	

RUBBER PARTS, SYNTHETIC	
— —	<i>Extrusions</i> 6 weeks
— —	<i>Molded Parts</i> 4 to 6 weeks
— —	<i>Die Cut Parts</i> 4 to 8 weeks

RUBBER, NATURAL
Futures trading resumed May 1. RFC to offer 155,000 long tons to domestic industry through Office of Rubber Reserve in accordance with allocations by CPA. Imports can now be made privately. Government's authority to control consumption, specifications and inventories of natural rubber continued. Allocation includes all rubber imported and manufactured in this country except neoprene and privately produced N-type synthetic.

SCALES	
4 to 8 months	<i>Platform, Portable</i> 7 to 9 months
2 to 8 months	<i>Truck, Wagon</i> 6 to 11 months

SCREW MACHINE PRODUCTS	
— —	45 to 120 days

SOLVENTS	
Immediate	— —

SPRINGS	
— —	<i>Extension, Compression</i> 3 to 12 weeks
— —	<i>Torsion</i> 120 to 180 days
— —	<i>Spring Stampings</i>

STEEL, CARBON	
5 months	7 months

SPEED REDUCERS	
8 weeks	10 to 14 weeks

SPROCKETS	
4 to 6 weeks	6 to 8 weeks

DELIVERY TIME	
Standard Products	Special Order

TANKS	
Immediate	<i>Steel</i> 5 weeks

TAPES	
2 weeks	<i>Masking</i> — —
7 weeks	<i>Electric</i> — —
12 weeks	<i>Cloth Back</i> — —

TIN	
10 days	2 to 3 weeks

Conservation Order M-43 places limits on deliveries of pig tin and on the quantities of tin used in manufacturing. Order M-81 controls the production of tin cans by limiting the weights of tin coating for cans and specifies end uses and tin content for certain products.

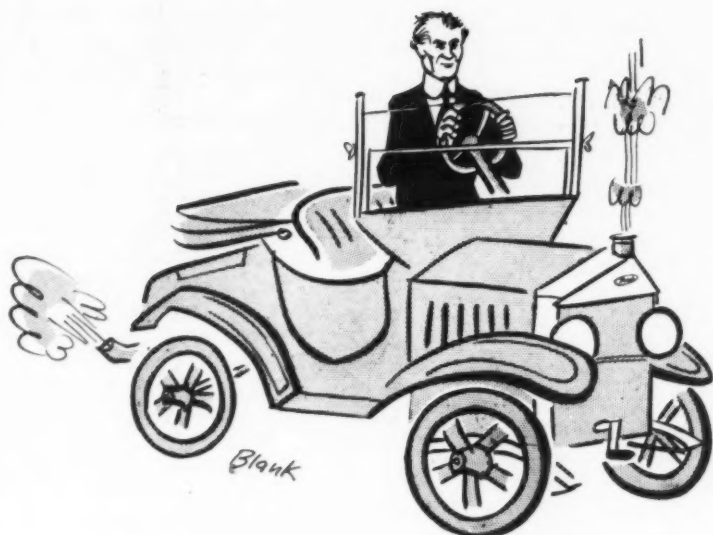
TRANSMISSION BELTING	
Stock to 24 weeks	24 weeks
Stock to 2 months	<i>Flat Transmission, Rubber</i> 4 months
Stock	<i>V-Belts, Rubber</i> 12 weeks

TUBING	
4 months	<i>Alloy</i> 6 months
2 months	<i>Stainless Seamless and Welded Tubes</i> 4 months

VALVES	
Stock to 5 months	<i>Brass</i> — —
3 to 4 months	<i>Bronze</i> — —
Stock to 90 days	<i>Bronze, Solder Type or Threaded</i>
Stock to 3 months	<i>Valves, Iron</i> 4 to 12 months
Stock to 2 months	<i>Valves, Steel</i> — —
Stock	<i>Quarter-Turn Plug Valves</i> 8 to 12 weeks
Stock	<i>Hypressure Jenny Steam Cleaner</i> 3 weeks
Stock to 30 days	<i>Valves, General</i> 60 days

WIRE	
Immediate to 2 weeks	<i>Aircraft Cable Wire</i> 6 to 8 weeks
6 to 8 weeks	<i>Card Wire</i> 5 to 6 weeks
Immediate	<i>Music Spring Wire</i> 3 to 4 weeks
— —	<i>Wire Forms</i> 3 to 4 months
24 weeks	<i>Constantan</i> — —
20 weeks	<i>Iron</i> — —
10 weeks	<i>Platinum</i> — —

WIRE CLOTH	
10 months	<i>Insect Screen</i> Beyond 10 months
8 to 10 months	<i>Copper, Bronze, Aluminum</i> 8 to 10 months
1 week to 4 mos.	<i>Standard Hardware Cloth</i> 3 weeks to 4 mos.
6-11 months	<i>Coarse Industrial Cloth</i> 6-11 months
	<i>Fine Industrial Cloth</i>



HISTORY IS BUNK

By Charles Ford

Henry Ford's remark, "History is Bunk," like Woodrow Wilson's "Too proud to fight," has been often quoted derisively. The newspaper headlines are intended to help sell the paper, and not necessarily to convey the true purpose of the news. As a matter of fact, much history *is* bunk. The average youngster can get a better, cleaner idea of the American Revolution from a half-dozen of the good historical novels written about that period than from all the text-books of all the states of the Union. No man in the public eye is ever seen in proper perspective, because no two editors interpret him alike. Ford was always "copy" for the reporters.

After all, it isn't dates of births and battles that make history. History grows day by day in the minds of the people; and how many men in a generation are equal to the task of interpreting this day-by-day growth, and making it live as a vital record?

This man, Henry Ford, has passed on. With a single, idea—cheap, fast, individual transportation over the roads—he influenced the 20th century more than any other one man. Using neither arms nor diplomacy, he outranks generals and statesmen.

Back in the early days of motor cars, when they were mostly imported at from six to sixteen thousand smackers laid down on the barrel-head, and the bigger his car the bigger the guy, an automobile meet was held in Providence. At the directors' table, wedged in between two large, important personages, was a slender, diffident man who was introduced as Mr. Ford. He hadn't much to say, but one of

his remarks went around that big hall like electricity. He said he intended to build one thousand cars during the next year and sell them for five hundred bucks per copy. The owners of the imposing imported cars at from six to sixteen thousand per each, shook their heads sadly and muttered things about the booby hatch.

But out of that remark grew the transportation phenomenon of all time—the little, ugly, rattly, simple, spry, rugged and reliable Model T.

"He took four spools and a little tin can;

He called it a Ford, and the damn' thing ran."

When an idea is sound, money follows it around like a leashed puppy. Henry Ford saw the world on wheels. To get it that way the wheels must be cheap and easily come by. If the Model T busted itself you could drop in at the next drug store, get the parts and screw them in yourself. When Ford's partners—whom he bounced at the earliest opportunity—saw the juicy revenue to be had from repairs, Henry put his foot down. Make is easy to keep them running, he said. And he did.

In every great industry there is some one name that stands out, typifying that industry. There was Carnegie in steel, Armour in meats, Rockefeller in oil, and others. And now came Henry Ford, with a clear vision of what might be done on the roads with an economical car that anybody could own, and a mass-production idea by which he could breed them like rabbits, knocking old Uncle John Q. Overhead for a series of giddily whirling loops. Ford set the pace, and continued to pace industry for thirty

years. When you think of motors, you think of Ford, even as the Cadillacs and Chryslers are spinning past your door. Henry Ford didn't invent the motor car, but he put one in every back yard so the wife and kids might have a Sunday ride.

In pricing his cars, Ford reversed the usual order of things. When we start out to make something, we generally figure the cost—if we can—and add for profit what we think we can get away with. Ford made up his mind a car should sell for, say five hundred simoleons. Then he would proceed to trim his costs accordingly by the unheard-of-method of pushing up wages and inventing short-cuts to more production. This wasn't gambling, but an uncanny instinct for sensing what the public could and would pay and what he could do about it. "Any color, so long as it's black," he reasoned.

They say a man is known by the company he keeps. Who hasn't heard of the famous rambling of Ford, Edison, Firestone and Burroughs? Ford and Edison are household names; Firestone was a respected and successful business man. But Burroughs was a farmer and a naturalist, who was on intimate terms with the trees and birds and plants, and wrote them in English as crystal-clear and charming as the mountain brooks about his Catskill home. When Burroughs died, Ford made a shrine of his home; and this one thing tells more of Ford than all the bricks in River Rouge.

People still mentally thumb their noses at Ford's Peace Ship that was to get the boys out of the trenches for Christmas. But what other

man would have had the simple-minded courage to bet three-quarters of a million on the outcome of such a crack-pot enterprise?

Men who do things make mistakes, and why should Henry Ford have been an exception? But he backed his mistakes with his own money and asked odds of nobody. When the country became saturated with Model T rut-hoppers and people began to get conscious of chromium trimmings and other colors besides black, it took some time for Ford to realize it. He spent a ship-load of money changing over to the Model A, but didn't go far enough. The other car builders used paint and powder and lipsticks to bait the women; and Ford still clung to his idea of a simple, sturdy, cheap machine. But what the hell is simplicity and sturdiness and cheapness to the partners of our joys and sorrows when the Joneses come out with a family car painted like Jezebel? Nix, brother; we want frills.

All this time, cars or no cars, that restless, probing mind of his went roving. He made glass; he made tires he rammed the Soya bean down the gullets of industry and made them like it. It gagged them at first; now they can't get enough. Ford whooped up wages when giving men a raise was a sin against economics. He didn't have to do it, but he had the idea that while he was creating ability to buy, he was creating a market.

For years Henry Ford staggered under a shower of money. I can't find any evidence that it disturbed his mind in the least. If something was to be done, he had the dough to do it, so what? If his ideas proved economically sound, the money part should take care of itself—and it usually did. It doesn't seem that his object at any time was definitely to make money, which is a unique thing.

Some myopic persons used to damn Ford's purchasing division from hell to Honolulu. It was claimed that he ground the faces of the poor, and took on suppliers only to bust them. You and I know very well that the bigger and more important the buyer, the less can he imperil his sources of supply. The chiseler who buys once can get away with it; but you must go back again and again for the same things, you've just plain got to see that the other fellow has something left in the sock at the end of each transaction. If he doesn't know how to do it, you lend him an engineer or

two to show him how. He must be prosperous or he's no good to you. I never heard of a Ford supplier busting, did you? I think if Ford found he was causing somebody to wobble, he would step in and do a little gratis engineering himself to see that nobody was hurt.

Bundled up in a rather slender physique, Ford was more different kinds of man than anyone I ever heard of. He had his weaknesses, even as you and I, but they were on a generous scale. Innumerable anecdotes of him reveal a man who liked to do good to others, who craved friendship but was always a little lonely. Perhaps he was somewhat isolated by his constant spate of new ideas. Perhaps he never got a full perspective of the giant he had created. Like Shakespeare, he scattered ideas without much thought of what might happen to them. There they lay; take them or leave them.

We have to recognize the colossal achievement of putting road transportation where everyone may use it. It's a very poverty-stricken outfit that hasn't some kind of a puddle-jumper in the back yard. Another side to the picture: it was the motor car industry, paced by Henry Ford, that made Detroit the seething cosmopolitan caldron of economical unrest that it is today; it was the motor car industry that bred the discontent and mental instability resulting in our epidemic of labor disturbances. Ford didn't like labor unions; whether he might have found a better way for labor to get what was due, I don't know. The Ford business was his; he created it out of a pint bottle of gasoline and five or six inches of gaspipe. It was his dog and he could do as he liked with it, but he'd be damned if anyone else was going to kick his dog around. If the boys got too tough to deal with, I wouldn't have put it past the old gentleman to lock the doors of River Rouge and toss the keys into Lake Huron.

Somebody printed a story about Mr. Ford to the effect that he didn't care a cuss about reports or statements; all he wanted to know was, how much cash on hand? After all, that isn't so strange; almost any of us, when he wants to do something that takes money, jingles the dough in his pants to see if there is enough to get by with. If there is, to hell with the consequences; when more is needed it will be there. Henry Ford undoubtedly wanted what he wanted when he wanted it. The potatoes in the field grew faster

than he could get them dug out. Moving large sums of money engenders a certain indifference to money.

There was a streak of impulsive generosity about the man. A fine story is told of his meeting a couple trudging away from their burned-out home, tired and busted and no place to go, and how he turned them back and rebuilt their place for them. And there's the case of the farmer, who, after pulling out the be-mired Lincoln bearing Ford, Edison, Firestone and Burroughs on one of their jaunts, remarked: "Now if you fellers had one of them Fords you wouldn't have had to get somebody to pull you out of that hole." The remark tickled Henry to the tune of a new Ford sedan in that farmer's yard.

One day Ford, after buying the Wayside Inn, got wind of the fact that a certain antique dealer in Milton or Dedham, or some place like that, had the original sign of the old Wayside Inn. An imposing car pulled up in front of this dealer's place one day, and an elderly gentleman walked into the place.

"You are Mr. So-and-So?"

"Yes, Sir."

"My name is Ford. I understand you have the original sign of the Wayside Inn."

"Yes, sir."

"I'd like to buy it."

"It isn't for sale, sir."

"I'll give you a thousand dollars for it."

"It isn't for sale, sir."

"I want the sign and I'll give you fifteen hundred for it."

"It isn't for sale."

Finally the old gentleman offered to give the dealer a Lincoln sedan for it.

No soap.

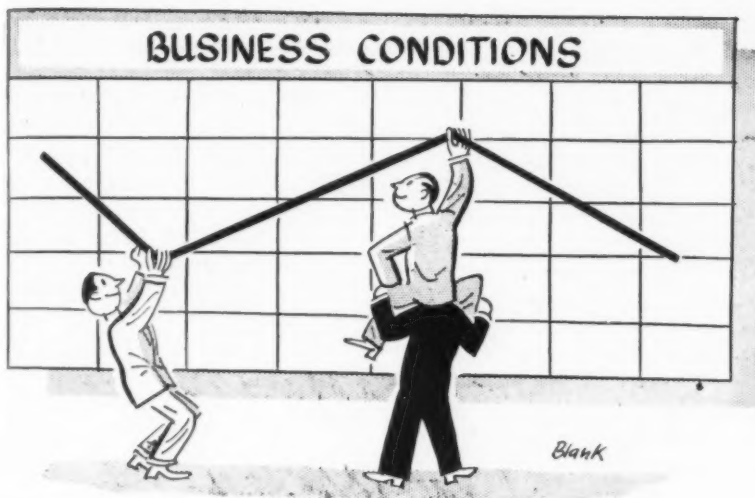
"What will you take for it, then?"

"Mr. Ford, I said the sign isn't for sale. I meant it. But if you will give me your personal check for one cent you can have the sign."

It was a deal. But the antique man, who probably had visions of Henry Ford's autograph on a check, framed and hanging on his wall, let the check go through the bank, and that was that.

It is hard to imagine what thoughts passed through the mind of this rugged individualist during his declining years. With Model T a thing of the past, and the cost and delay in finding a hit to replace it; with competitors crowding him with the powder-and-lipstick style of car, which he probably didn't like much; deprived by death of the son who

(Please turn to page 340)



Let's not talk ourselves into a business depression, for our national security and prestige depend on proving the vitality of democracy and free enterprise

By Grey Leslie

BUYERS' AND SELLERS' MARKETS

THE retail price-cutting scheme that started as a skirmish at Newburyport threatened to develop into a full-fledged price battle on a national scale. It is doubtful if this skirmish in Massachusetts will be memorialized as another New England "shot heard round the world". It is only one symptom, but an important symptom, of an unhealthy economic condition demanding attention.

Clear thinking purchasing agents will discover a particular significance in this price-cutting wave that spread over the country in the wake of President Truman's appeal for voluntary anti-inflation action. The consumer, who had long been the forgotten man in the price-wage race, suddenly found himself the center of attention, the object of almost solicitous consideration, by those who have things to sell. His bewilderment at this sudden and intense interest was somewhat tempered by skepticism. When the first fine careless rapture of cascading retail prices is worn thin, and millions of consumers are disappointed by the lack of continuity in price reductions all along the line, there may well develop a "wait-and-see" attitude that could mean stagnation—the first warning trumpet-call of a depression.

But there are deeper implications. In all the recent pother and the continuous harping on a "sellers' market turning into a "buyers' market, some of the best friends and beneficiaries of the American free enterprise system are unwittingly becoming its severest critics. They

are adding the mite of their public and private opinions to a telling weight in popularizing an erroneous notion—the notion that in our economic system the seller has the buyer by the throat or *vice versa*. The elementary fact that any market, by simple definition, consists of *both buyers and sellers*, is buried in a jungle of slogans. Regardless of varied interpretations or profound definitions, "a market in the broadest sense, is a place where the facts relating to supply and demand are converted, through an attrition of human intelligence and interest, into prices; in short it is a price mill".¹

There is a further fact that gets obscured; it is, that buyers and sellers in any market must *both* profit by their transactions or there will be no continuing market at all. The glibly tossed-about phrase, "buyers' and sellers' markets", is another evidence of the habit of ready adoption of slogans without much examination or analysis of their real meaning and import.

To most people a "sellers' market" means an era of extreme shortages when buyers clamorously compete to buy anything on any terms at any price and are left unsatisfied. A "buyers' market" means a time when it is difficult to sell things at any price on any terms. There can be no economic health in either period, and if one or the other is of long duration, economic chaos must result. Mountains of

empirical evidence can be adduced to prove it.

The fact that many prices are too high is clearly recognized by all competent observers. However, high prices cannot be corrected by action at any one level of distribution or production. There can be no lasting improvement in the economic structure by haphazard and sporadic price-cutting here and there. Nor is any permanent good accomplished by certain classes of opportunistic merchants using spread-eagle advertising techniques to proclaim their patriotism. The public reaction to this business of opportunistic advertising may be cruelly disappointing to some of its enthusiastic sponsors. Some unscrupulous merchants are using phoney, inflated prices to show extravagant reductions; some are marking down prices on slow-moving items only; some are making a virtue of necessity by trumpeting "loss-leaders" to beguile the buying public. But the canny housewife will not long be taken in by such questionable performances, and the respectable business community will outlaw them.

Reputable retail merchants are not entirely immune from criticism either. Once normal vision is restored, after some of the spectacular advertising pyrotechnics indulged in, one begins to sense that most of the "what-we-must-do-to-be-saved" admonitions in this anxious business of lowering prices, really mean "Let George do it"—"George" in most cases being the manufacturers, producers or suppliers to the retail out-

¹ *Principles of Economic Philosophy*, by Van Buren Denslow. Page 102.

lets. On the whole it is a not too subtle effort to put the blame for high prices on producers and suppliers.

There is an incidental element of amusement in the stampede of some die-hard bureaucrats crowding the rostrum to gloat over their Cassandra prognostications of run-away prices when government price control ended. Some have even vigorously plumped for a resuscitation of the OPA octopus in either overt or disguised form.

Clearly, most retailers cannot continue even a 10% cut in prices unless their suppliers cut prices by proportionate amounts. By and large the suppliers have no such margin on which to operate, and they in turn must look to the manufacturers to reduce prices. Basically, the price level for manufactured goods has been raised on the stilts of high labor costs and high raw material prices.

Our age has been thoroughly educated in the efficacy of collective action. It requires no dramatization to convince serious thinking people that the only way to lower prices realistically, is through the elimination of unessential operations, cuts in raw material costs, stable wage rates, vast improvement in productivity, alert procurement and reorganization of the distributive processes. With prices down, the excuse for higher and even higher wage demands will lose validity, and there will be a compelling incentive for greater efficiency all along the line.

The American system of free enterprise is not a one-sided affair with industry and management carrying the entire burden. It is a cooperative industry-management-labor-consumer venture.

That brings us to the deeper implications of the situation; the larger matter that must address itself to every American, regardless of his profession or avocation. It has particular force for Purchasing Agents because their unique responsibilities afford them close observation of the inter-action of all parts of our economy. Every part of that economy passes in review before the purchasing agent, from the routine salesman interviews through the whole complex business of production and production scheduling, inventory control, market forecasting, supply selection, sales and public relations.

The day has long passed when it was sufficient for the purchasing

agent to think and act only in terms of his purchasing job, his own organization, and his own industry.

The responsible judgment now required of him demands a range of information and economic acumen not heretofore expected. His new, but welcome, responsibilities call for a sustained, objective effort to thoroughly understand our American economic system; to help correct its faults, and to be able to support and defend it against forces and ideologies that would destroy it.

The "boom and bust" slogan is being furbished once again by groups of sophisticates posing as economic diagnosticians. It might be well to keep in mind that, notwithstanding the enticing alliteration of the words "boom and bust", the conditions they imply are not inevitable in our American industrial scheme. Some boom periods of the sadly remembered past may have engendered stupid, widespread speculation and folly; but with all their shortcomings they never pushed Americans into a speculative orgy like a Darien Scheme nor a South Sea Bubble. We have an instinct to over-build, to over-expand, to dazzle with magnitude—to do almost anything and everything with a youthful exuberance, and we have paid the price for some of our mistakes by periods of belt-tightening. But in the only rival economic systems offered, the tightened-belts seem to be permanently drawn.

This does not condone an attitude of vapid complacency. Quite the contrary.

Any symptom in the economic working of our American Democracy that indicates a weakening in any part of the free enterprise system, must be vigorously explored and the condition it exposes must be frankly recognized and promptly adjusted. It would be the better part of prudence to do so at any time such a symptom appeared, but it is an imperative challenge now. I believe the Newburyport episode is one such symptom. Whether we apply whatever remedy is required, vigorously, efficiently, and pervasively, or dose the malady with soporific expedients, will be the test of our own faith in our free enterprise system.

When this nation was forced into a position of world leadership, many of us wondered why we should be called upon, as Americans, to show or to prove things that we felt everybody already knew. The cata-

log of achievements, under our American Democracy and our free enterprise system, seemed to us obvious proof of their workability and benefit to humanity. A mere scrutiny of them would seem to have been persuasive. Since our economy has become international in scope and importance, the attitudes of our citizens require corresponding broadening. This broadening from national to global proportions inevitably modifies the natural parochialism of popular thinking.

We must remember that the inner principles of our democracy were mortally challenged by Germany and Japan. Democracy triumphantly met that challenge. Democracy is challenged anew today by communism. The totalitarian nations are anxiously watching for an American economic crisis; that would be as effective for their purposes as a shooting war. Any weakening of our economic structure, however minute, would be a cheap victory for them.

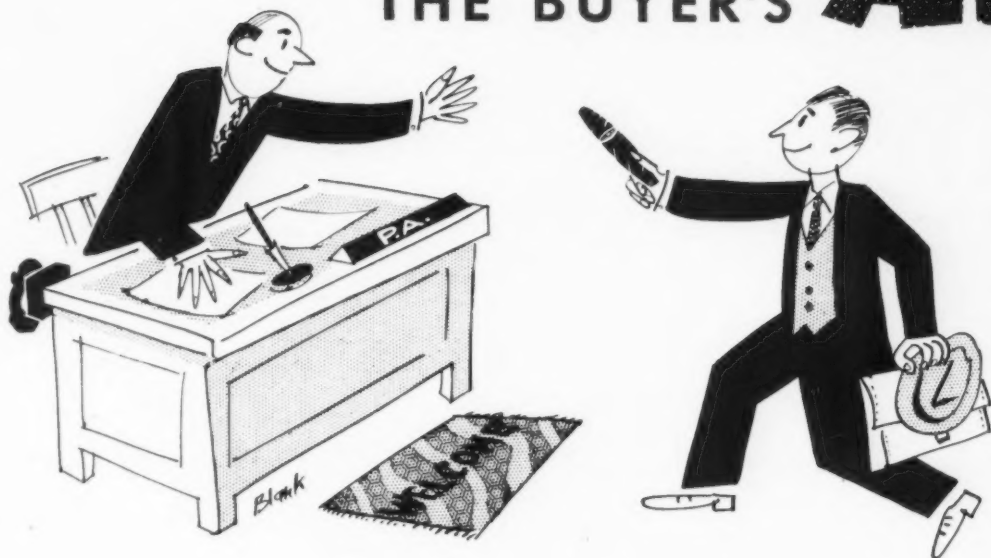
We now see that the responsibilities of world leadership demand that we pass from the defensive to the offensive. We have no choice. We must combat the opposing systems by showing and proving that our way, with whatever shortcomings it has, provides a higher standard of living, more freedom and more contentment than any other. We must present our catalog of achievement against the other systems' production record of over twenty-five years of privation, regimentation and misery.

I believe that it is logical to say that the continuing intransigent phase of Russian policy is largely explainable by that country's expectation of a grave economic collapse in the United States. It appears to be the conclusion of sound economic and diplomatic experts, that Russia does not want major issues settled promptly. It appears that the Russians believe that the United States world position, and consequently American opposition to Russian plans, will soon be drastically undermined by an economic crisis in the United States. Certainly even a temporary lessening of American national income, with the resulting contraction of both buying and lending power, would destroy the only hope that most western European countries possess for re-establishment and rehabilitation on democratic lines.

A first step toward such an economic crisis would be a "wait-and-
(Please turn to page 332)

THE BUYER'S **AESOP**

By Irma Fuehr



The Fable of a Beautiful Business Friendship

ONCE upon a time there worked in the Up-and-Up Lathe Company a purchasing agent named Joe. As his most frequent visitor Joe had a salesman named George.

George was a good egg. The minute he walked into Joe's office he said, "Have a cigar, Joe. How's your sinus trouble, Joe? And how did your wife make out on her bridge earnings this month, Joe? Let's go out for a snifter while we talk business, Joe." Over a snifter of the best Scotch, George would tell jokes, off-color or on, and he would finally come away having sold a terrific bill of goods.

Of course, other salesmen came to call on Joe. But he couldn't see them for dust, or for George. And George was the only guy who got the welcome mat put out for him.

Even if you've never been a salesman, it won't take any two-way stretch of your imagination to understand how the rest of the selling brotherhood felt about Joe and George. How would you like to wait for hours and then be told that the boss is busy? How would you like to be told that your product doesn't come up to George's? How would you like to feel as welcome as a clergyman at a strip poker game or a leper with halitosis and b.o.? You wouldn't? Well, we just wanted to make our point good and clear.

This little love feast between Joe and George went on and on, and soon almost no one called on Joe except George. But the love feast couldn't go on *ad infinitum*. One day there was a big conference at

Up-and-Up, with Management out in full force, and everyone listening to some straight-from-the-shoulder talk from an executive named Upson. "Our lathes are as good as anybody else's," said Upson. "At the same time our prices are ten per cent higher. We're losing business. We've got to lower our prices, gentlemen, or operate on a strictly philanthropic basis."

"But," protested Mr. Statistic, the head accountant, "with our costs what they are we *can't* lower prices. I've checked. Our margin of profit would be no larger than it should be in a healthy business, if we happened to make a sale."

Everyone looked down at the table. Everyone reached for a cigarette. Everyone said nothing.

"Maybe it's our production methods," the Sales Manager suggested finally. "Maybe we're stacking up too many man hours per unit."

Production glared. "Last year's time studies show that we spend 1.9433 less hours on each machine than either Lasiter Lathes or Lathes, Inc.," he shouted.

There were more looks at the table and more cigarettes. "What about material costs?" demanded Production.

At that, everyone looked at Joe. "Whataboutit?" they said. "Whataboutit?"

"I haven't checked recently," muttered Joe. "But I'm sure—"

The rest were not so sure. "Make a study. Report back in a week," they said.

Joe didn't sleep much that week.

He hollered at his wife and at his secretary. He hollered at everybody. For he didn't need a vision to discover that he'd been paying far too much for the orders he'd given George. He called George. "Sorry, Joe," said George. "Those are the prices my firm set up, Joe. I can't change them, Joe. By the way, how's your sinus trouble, Joe?"

Joe banged the receiver into the cradle. He instructed his secretary to leave out the welcome mat at all times. But no one came to walk over it. He got on the phone again and told the salesmen he'd brushed off that he was just dying for a visit from them and wouldn't they come up and see him sometime—soon? But all the salesmen were just going out of town or couldn't come until next week or had just enough to supply their regular customers or had such a backlog that laid end-to-end their orders would stretch far beyond the stratosphere or—well, you know.

The last Joe was heard of he was purchasing for a one-horse outfit half a step removed from bankruptcy, and he walked along the street mumbling brokenly into his beard. However, his voice was too shaky for anyone to make out what he was saying.

Moral: "Don't get all your eggs from one basket, Joe, even if the basket is a good egg, Joe."

And/or: Competition is the life of the buyer. Besides which, you can train any good salesman to ask about your sinus trouble.

APPLYING THE FAIR LABOR

The nature of your purchases and sales determines whether minimum and overtime wage regulations apply to your workers

By Leo T. Parker

ALTHOUGH purchasing agents have not in the past been particularly concerned with the Fair Labor Standards Act, now is an opportune time to realize the full legal effect of this law. Originally, many employees honestly believed that this Federal Wage Law effected *only* employees engaged exclusively and solely in interstate business and transactions. In other words, it was admitted by the ordinary layman that all persons, firms and corporations that sold merchandise to purchasers in all states in the United States were subject to the powerful and drastic provisions of this Fair Labor Standards Act. But many of these same buyers and sellers did not realize the far-reaching effect of the law, as recently interpreted by the higher courts.

In fact numerous employers who honestly believed that they were conforming with the provisions of this Federal law have been held liable in heavy penalties, double wages and attorney fees and their expenses. Therefore, the purpose of this article is a review of the most important higher court decisions involving the Fair Labor Standards Act, decided the past few months, so that readers may avoid expensive litigation, penalties, payment of back wages, attorney fees, etc.

The Fair Labor Standards Act clearly stipulates minimum wages that must be paid to employees engaged in "production, handling" and shipping of merchandise in interstate commerce. Therefore, exactly the same minimum wages must be paid for example, to a worker in a rural or mountain area, as must be paid to ones employed in a city who, of course, have considerably more expenses, loss of time through transportation to and from work, and a multitude of other inconveniences and expenses compared to

an employee who performs interstate work in localities where expenses are at a minimum.

Broad Coverage

During the past few months the Supreme Court of the United States has rendered several decisions which broadened previous coverage of the Fair Labor Standards Act.

First, see Willis, Vol. 90 Page 386, S.C. Reports.

While the average purchasing agent, or other purchaser, may not be particularly interested in this case, yet it is a highly important illustrative decision. Here the question presented the higher court was whether employees who clean windows in office buildings are within the scope of the law. The Supreme Court held in the affirmative, and based its decision on the fact that



many windows in office buildings were used to give light to firms and tenants in the buildings who transact interstate business.

For comparison see Barrick v. South Chicago Coal and Dock Company, 149 Fed. (2d) 960, reported August, 1945. In this case the testimony disclosed that a company sells and delivers in a city over 75% of its products at retail. The question presented the court was whether employees engaged in *loading and unloading* from railway cars merchandise received by their employer from points *outside* the state are exempt from the Fair Labor Standards Act. These employees who performed the work of loading and unloading the merchandise sued to recover wages, etc., under the Fair Labor Standards Act.

The employer defended the suit on the contention that the employees are exempt and not entitled to wages specified by the Fair Labor Standards Act under Sec. 13(a) (1) and (2). This Section provides

that employers whose majority of business is retail need not pay wages specified by the Federal Wage Law.

The higher court refused to hold the employees exempt, and in holding that the employer must pay minimum wages specified by the Fair Labor Standards Act, the higher court said:

"This section was designed to cover persons engaged in the actual sale of commodities and does not extend to employees whose work was entirely disconnected therewith."

Also, see the United States Supreme Court decision in A. H. Phillips, Inc., v. Walling Administrator, 65 S.Ct. 807, 810. In construing Sec. 13(a) the court stated::

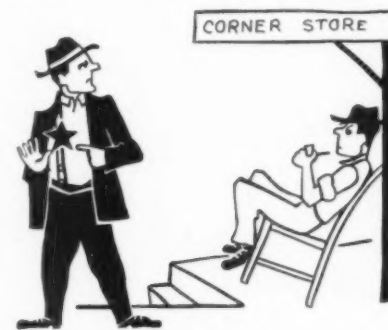
"Congress was interested in exempting those regularly engaged in local retailing activities and those employed by small local retail establishments, epitomized by the corner grocery, the drug store and the department store."

Thus a company which manufactures and sells merchandise within the state *at retail* is not required to pay wages by the Fair Labor Standards Act.

Majority Intrastate

Another important point of law is that companies which sell merchandise, the greater part of which is intrastate commerce, do *not* come within the purview of the Fair Labor Standards Act.

For example, in Harris v. Hammond, 145 Fed. Rep. (2d) 333, a suit was filed by three former employees of a man named Hammond



to recover unpaid minimum wages, overtime compensation, liquidated damages, attorneys' fees and costs under the Fair Labor Standards Act.

During the trial testimony was given that the majority of Hammond's sales were made to cus-

STANDARDS ACT

tomers who entered his yard. He had a limited number of customers in adjoining states, to whom he made deliveries. However, a very large majority of his customers lived within the state. Only one delivery truck was used in delivering products to customers in adjoining states.

The higher court refused to hold Hammond within scope of the Fair Labor Standards Act because the testimony proved conclusively that less than 20% of his business was to customers outside the state.

What Is Retail Establishment?

Modern higher courts consistently hold that a "retail establishment" is a business making retail sales, in individual quantities, for personal or household consumption. In other words, a retail establishment sells merchandise usually and regularly regarded as "consumers" goods.

Therefore, an employer whose majority of business is sales at wholesale is not a "retail establishment" and, therefore, must pay wages specified by the Fair Labor Standards Act.

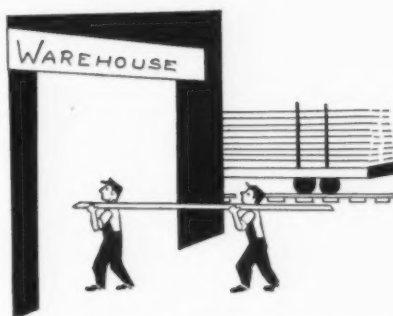
For example, in *Walling v. Consumers Company*, 149 Fed. (2d) 626, it was shown that a company is engaged in operating 24 yards selling coal, building supplies, and other materials. The coal and building materials coming to these yards are purchased from mining companies, wholesalers, and manufacturers located in *other* states. These commodities are delivered by railroads at the yards on the company's own switch track; the employees unload the cars. In its yards the company carries a supply of merchandise to take care of its trade for a period of 20 to 30 days.

A majority of the deliveries of building materials are sold in large lots to contractors who use the materials in the construction of buildings, streets, and roads.

The employer contended that its employees engaged in unloading the coal and building materials were not within the coverage of the Act. The argument was that after the goods arrived at the yards they had "reached their final resting place," and the interstate character of the shipments ceased. This court held these employees entitled to wages specified by the Fair Labor Stan-

dards Act, and that the company is *not* a retail establishment.

On the other hand, see *Higgins v. Carr Bros. Company*, 317 U.S. 572; 138 Me. 264. In that case the employer bought his merchandise from dealers in other states, which was delivered by truck and rail, unloaded into its warehouse, and *from there* distributed to the retail trade.



The court held this employer *not* covered by the Fair Labor Standards Act. However, in this case the higher court clearly stated that these employees were not engaged in *unloading* of the merchandise from the trucks and rails. Their duties were to load trucks with merchandise *obtained from the warehouse* and deliver it to the local trade.

Intrastate Business

No employee who performs strictly intrastate business is within the scope of the Fair Labor Standards Act. See *White*, 128 Pac. (2d) 821, where an employee sued his employer to recover overtime payment under the Fair Labor Standards Act. The testimony proved that the duties of the employee were driving a truck for the employer and delivering merchandise.

The employee contended that he was engaged in interstate commerce and entitled to receive wages specified by the Fair Labor Standard Act because his employer had received through interstate commerce a very small quantity of merchandise during the past two years.

The higher court refused to hold in favor of the employee because the employer was not *generally* engaged in the production of goods for interstate commerce.

Also, see *Certified Company*, 38 F. Supp. 964. In this case the testimony showed that an employer imported products and sold them to the retail consumers trade.

This higher court held that although the "wholesaler" had received the products interstate commerce, yet the *instant* he took them to his premises for sorting and storage the merchandise was under *intrastate* laws, and his employees were not entitled to wages under the Fair Labor Standards Act.

For comparison, see *Welles*, 15 So. (2d) 720, where the higher court held that a contract between an employer and a bookkeeper is void by the terms of which the employee agreed to work for less than wages specified by the Fair Labor Standards Act.

This court held this bookkeeper entitled to recover \$2,200 back wages, attorney fees, and penalties because the testimony showed that the employer was engaged in shipping merchandise to customers in different states, and the employee performs clerical work in the office.

The higher court held that the fact that the employee signed a contract agreeing not to hold his employer liable for more than \$30 a week salary did not prevent the employee from suing and recovering full back wages due, penalties, and attorney fees under the Fair Labor Standards Act.



Recently, a higher court held that an employer within the scope of the Fair Labor Standards Act need not guarantee any employee any number of hours for work per week.

In *Malloy v. United of America*, 16 Ohio Supp. 76, it was shown that a truck driver and other employees sued their employer to recover back wages under the Fair Labor Standards Act.

The legal question presented the court was whether the employer must pay these interstate employees wages for a minimum number of hours per week. This court said: "

"There is nothing in the Fair Labor Standards Act requiring a guaranteed weekly wage for a specified number of hours."

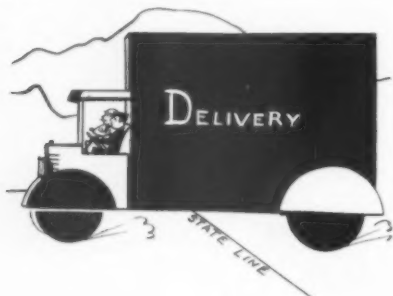
In Vol. 325 United States Official Reports 679, it was shown that a

corporation owns an office building. This building is occupied by its employees who administer, manage and control the production of the corporation's goods for interstate shipments. Although the company's factory is located in another state the Supreme Court of the United States held that these employees are within scope of Fair Labor Standards Act.

On the other hand, see *Callis*, Vol. 325 United States Official Reports 578, where the Supreme Court of the United States held that employees paid by the owner of an office building, used by tenants who manufacture merchandise for shipment in interstate commerce, are *not* within the scope of the Fair Labor Standards Act.

Motor Truck Drivers

Considerable legal discussion has arisen over the question when a truck driver is entitled to wages specified by the Fair Labor Standards Act? Two late higher court decisions illustrate variations of this law.



In *Guthrie v. Emmons*, 12 Ohio Supp. 45, Ohio, the driver of a motor truck hauled products in interstate commerce. In other words, he transported merchandise from one state into other states. He sued his employer to recover wages for overtime, liquidated damages and attorney's fee under the provisions of the National Fair Labor Standards Act.

The higher court held the employer not liable, because the Interstate Commerce Commission had the power to fix hours of service of this truck driver. Under such circumstances the Fair Labor Standards Act is not applicable, so held this higher court.

On the other hand, see *Farris v. Same*, 12 Ohio Supp. 46, Ohio. Here a higher court held that all truck drivers are entitled to wages specified by the Fair Labor Standards Act if such driver operates a motor truck wholly within the state, but calls for merchandise that has been shipped to a depot from outside the state.

This higher court stated that this driver transported products intrastate because he hauled goods exclusively in a single state. Therefore, he was *not* within jurisdiction of the Interstate Commerce Commission. However, all truck drivers who complete the final act of delivering merchandise shipped in interstate commerce are within provisions of the Fair Labor Standards Act.

Purchasers Are Within State

In order that readers may have opportunity to know details of a variety of higher court decisions on the Fair Labor Standards Act, we shall briefly review outstanding late and leading cases which involve various phases of the law.

According to a late higher court decision an employer is within the scope of the Fair Labor Standards Act, if he sells merchandise to purchasers who use it in interstate commerce. See *Southern Company v. Hendrix*, 153 Fed. (2d) 689, reported June, 1946, where the testimony proved that a company did *not* sell its products to purchasers outside the state, but the purchasers within the state used the materials to preserve merchandise which was shipped outside the state. These employees contended that they were engaged in "production of goods for commerce" within the meaning of the Fair Labor Standards Act.

The higher court upheld this contention.

Contractor Liable

The Fair Labor Standards Act clearly provides that all employees "necessary to the production" of goods for interstate commerce must be paid wages specified by the Act.

For example, in *Walling v. McGrady Const. Company*, 156 Fed. (2d) 932, reported September, 1946, it was shown that a contractor was engaged in the construction of a new highway for an industrial plant and which shipped its products in interstate commerce.



The United States sued the contractor on the contention that he must pay wages specified by the Fair Labor Standards Act, plus one and one-half times these regular wages for overtime. These employees consisted of foremen, timekeepers, drivers, bricklayers, operators of cranes and other machines, laborers, watchmen, and the like.

The contractor argued that he was not engaged in the "production of goods for commerce" within the coverage of this Federal Wage Law.

The higher court held the contractor must pay hourly wages specified by the Fair Labor Standards Act, plus time and one-half for overtime. This court said:

"It is clear that the purpose of the Fair Labor Standards Act was to extend federal control in this field throughout the farthest reaches of the channels of interstate commerce. Vehicular roads and bridges are as indispensable to the interstate movement of persons and goods as railroad tracks and bridges are to interstate transportation by rail. If they are used by persons and goods passing between the various states, they are instrumentalities of interstate commerce. Those persons who are engaged in maintaining and re-



pairing such facilities should be considered as 'engaged in commerce' because without their services these instrumentalities would not be open to the passage of goods and persons across state lines."

Overtime Wages

All employers who do any interstate business must pay employees one and one-half for overtime.

In *Kreeft v. Bates*, 63 Fed. Supp. 881, reported August, 1946, an employee sued his employer to recover for overtime work between the years 1938 and 1942, or some 1,446 hours, amounting to \$2,480.03.

Since the employer had not paid the employee one and one-half wages for overtime, the higher court held the employee entitled to a judgment for \$2,480.03 as overtime wages,

**SAE
950**

They mean the same in steel

**N-A-X
HIGH-TENSILE**

N-A-X HIGH-TENSILE is synonymous with SAE 950 at its best. It is recommended by a long record of successful applications which involve severe forming operations, severe service conditions. When specifications call for SAE 950, get the full benefits of N-A-X HIGH-TENSILE's *proved* properties: 1) High strength. 2) Finer grain structure. 3) Good formability. 4) Excellent weldability. 5) High fatigue-resistance. 6) Great impact toughness. 7) High corrosion-resistance. N-A-X HIGH-TENSILE has all seven—keeps all seven.

MAKE A TON OF SHEET STEEL
GO FARTHER

Specify—



GREAT LAKES STEEL

Corporation

**N-A-X ALLOY DIVISION • DETROIT 18, MICHIGAN
UNIT OF NATIONAL STEEL CORPORATION**

plus an equal amount for liquidated damages with interest and counsel fees of \$400.

Part Time Work

An employee who assists part or full time in manufacturing, processing or handling interstate commerce goods is entitled to wages specified by the Fair Labor Standards Act.

For example, in *Orange v. Tugle*, 27 S. E. (2d) 769, an employee was employed to assist part time in unloading trucks at the employer's plant. The trucks contained merchandise transported from other states. He sued to recover back wages under the Fair Labor Standards Act. The higher court held in favor of the employee, and said:

"The unloading at destination of an interstate shipment is work in interstate transportation, whether done by the carrier or another."

Employees Clear Land

A late higher court has held that the Fair Labor Standards Act is *not* applicable to employees who clear land, if the timber is cut for land clearing purposes.

See *Ridgeway v. Warren*, 60 Fed. Supp. 363, where it was shown that a company incidental to its other business cleared its land. The higher court held that the company is not subject to the Federal Wage Law.

On the other hand, see *Colquette v. Crossett Company*, 149 Fed. Rep. (2d) 116. In this case it was shown that an employee filed suit against a company to recover overtime compensation, liquidated damages, and attorneys' fees as provided by the Fair Labor Standards Act.

The employee proved that he cut trees and otherwise worked on timber which was used to manufacture products sold in interstate commerce. The higher court held that the employee was entitled to recover wages specified by the Fair Labor Standards Act.

Although a company manufactures containers *exclusively* for

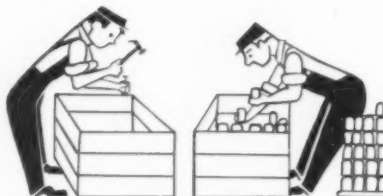
sale to persons within the state, the manufacturer is *not* exempt from payment of wages specified by the Fair Labor Standards Act if the purchasers pack merchandise in the containers for shipment to customers outside the state.

For instance, in *Dize v. Maddrix*, 144 Fed. (2d) 585, it was shown that a corporation did *not* sell any containers to purchasers located outside the state. But the containers were used by these purchasers to pack merchandise which was shipped into other states in interstate commerce.

This higher court held the container manufacturer required to pay its employees wages specified by the Federal Wage Law.

The reason for this decision is that the containers were "destined" to be used in interstate commerce when manufactured and sold by the manufacturer.

According to a late higher court decision a company is not within the Fair Labor Standards Act if it has its own designs of merchandise manufactured by other persons and firms.



For example, in *Ullo v. Smith*, 62 Fed. Supp. 757, reported 1946, it was shown that a corporation buys and sells jewelry. Very frequently the corporation submits its own designs to firms which "make-up" the jewelry especially for the corporation. The question presented the court was: Is the corporation engaged in production of merchandise for interstate commerce and, therefore, subject to the Fair Labor Standards Act. In holding in the negative, the higher court said:

"True, at least, some of the buying was done pursuant to designs submitted. This, however, does not constitute this concern as a manufacturer or handler as part of manufacturing."

On the other hand, in another case the testimony proved facts, as follows: The Regina Novelty Company is engaged in the business of selling earrings, necklaces, bracelets

and similar novelty jewelry. A large percentage of the sales are to customers out of the state. The higher court held that this company is engaged in interstate commerce. Therefore, it is subject to the Fair Labor Standards Act.



And in another instance it was shown that the Haskell Company purchases, in bulk, glass, beads, bits of wood, etc., counts them out and sends them out to be made up into jewelry by contractors in accordance with sketches and samples. When finished they are delivered, put in stock and sold. As a part of the sale, of course, they have to be packed and sent out to the purchasers. This court said:

"He clearly comes under the definition of a manufacturer giving the work out to a contractor."

Executives

Modern higher courts consistently hold that any employee whose primary duty is "management" or who customarily and regularly directs the work of other employees is not within the scope of the Fair Labor Standards Act.

See *Allen v. Atlantic*, 145 Fed. (2d) 761, where an employee's primary duties were 80% management of other employees and 20% performing manual work. The employee sued his employer to recover back wages, penalties, lawyer's fees, etc. under the Fair Labor Standards Act.

The higher court refused to hold in favor of the employee, because he acted as a manager.

Exempt Employees

Also, see *Anderson v. Federal Cartridge Corporation*, 156 Fed. (2d) 681, where it was shown that certain employees managed departments of the establishment, and customarily and regularly directed the work of other employees. The higher court held that these employees are *not* entitled to wages specified by the

(Please turn to page 334)



"How'd YOU like to find HOMES FOR 653 PEOPLE?"



"Sounds impossible, doesn't it? That's what I thought when the boss told me we had to provide housing near the new plant in order to get a labor force."



"But it was easy! For then I found out about Stran-Steel Homes—and I proved to the boss how quickly and economically they would solve our problem for us."



"Now we've got a happy, well-housed labor force, and production's zooming. The workers say their Stran-Steel Homes are perfect—modern, attractive, comfortable and clean."



STRAN-STEEL ARCH-RIB HOMES—a revolutionary new housing development. Designed by nationally known architects, these beautifully livable homes can be built for \$4000 to \$6000—complete! Your Quonset* dealer can show you plans and give you full details.

**"I FOUND A NEW FIGURE
IN MY PAY CHECK
TOO!"**



"When the boss is pleased with his purchasing agent, he certainly knows how to show it. And he was tickled pink because those Stran-Steel Homes went up in such a hurry and turned out to be such a good investment. If you have any problems about employee housing, you can take it from us that Stran-Steel Homes will give you *all* the answers. Talk to your local Quonset dealer or write direct to Great Lakes Steel Corp."



GREAT LAKES STEEL CORPORATION

STRAN-STEEL DIVISION • DEPT. 45 • PENOBSCOT BLDG. • DETROIT 26, MICH.
UNIT OF NATIONAL STEEL CORPORATION

*REG. U. S. PAT. OFF.

New PRODUCTS IDEAS

Purchasing Agents and their Assistants are invited to check the pre-paid "Ask Purch" postcards on Pages 19 and 20 for late catalogs and bulletins on New Products, Materials, Finishes, Equipment, etc.



PORTABLE INDUCTION HEATER



PORTABLE induction heater, model UP, manufactured in units of 10 kva, for pre-heating and normalizing for welding, is said to provide flexibility and adaptability to a wide range of

applications and capacities. Each unit is complete in itself and contains a power unit, contactor, meters and control supply. Added uses include shrink fitting, testing bus connectors, current transformers, resistance heating for brazing and soldering etc. *Electric Arc, 32 Jelliff Ave., Newark, 8, N. J.*

MACHINE SANDING CURVED SURFACES

DESIGNED for use with the Sterling 1000 portable electric sander; flexible sponge rubber pad is said

to facilitate machine sanding of convex and concave metal, wood, plastic, etc., surfaces. A 3 2/3" x 10 1/4" abrasive paper sheet is placed over the flexible pad in the same manner as is done with the standard sanding pad. *Sterling Tool Products Co., 363 E. Ohio St., Chicago 11, Ill.*

2-TON AUTOMOBILE JACK



OVERSIZE 2-ton automobile heavy-duty, precision-built hydraulic jack has automatic two speed lift. It is designed with a short frame and has a long handle for efficiency in service where dollying is

not the prime consideration. The range of lift is 4 1/4" to 22 3/4". After manual engagement with load, high pressure pump takes over automatically. Design incorporates an automatic safety device to prevent overloading during lift. *Rumsey Products, Inc., Seneca Falls, N. Y.*

ALUMINUM-FINISH ENAMELS DEVELOPED

LINE of enamels known as Britelume, are said to bake or air dry to a finish closely resembling brilliant aluminum. Manufacturer states they are usable on most metals to produce an attractive finish that is resistant to heat and chemicals. *Mass & Waldstein Co., Newark, N. J.*

ADJUSTABLE SAW TRACK



STANLEY adjustable saw track No. 158 is for use with W7, and W9 safety saws for square, bevel or mitre cuts. It eliminates the necessity of laying out and marking each piece of lumber. The saw track may also be used for cutting slate, marble, etc., when the proper abrasive wheel is used. Dimensions are: overall length 37"; overall width 7 3/4"; maximum height under track 4 1/2"; maximum width of wood possible to cut 17 1/2"; overall height 5 3/4"; and overall track length 34 1/4". *Stanley Electric Tools, New Britain, Conn.*

TRIPLE-ACTING CUTTING FLUID

states it contains no solvents, abrasives or free alkali. It is a liquid concentrate, non-inflammable and non-toxic which is diluted with approximately 15 parts water. *Pentone Co., Tenaftly, N. J.*

COOLING, cleaning and gentleness to the hands are claimed for new cutting fluid.

Manufacturer states coupling plate affords rigidity and safe suspension when duct is used for lighting fixture installations. *National Electric Products Corp., 12 Fulton Building, Pittsburgh, Pa.*

PORTABLE LINE MARKER

MARK-RITE line marker operates on gravity feed principle and does not require air pressure, hoses, electrical outlets, etc. Features include self-cleaning valves, large wheels and over-size filler cap. Maker states set-up or cleaning may be accomplished in five minutes. The marker weighs 18 pounds, has an over-all length of 56 inches, and is equipped with a paint spreader type brush in interchangeable 2", 3" or 4" widths. *Universal Sales Co., 3062 W. Main St., Alhambra, Calif.*



ANNOUNCE NEW GRINDING WHEEL

SERIES 20 is a ceramic or vitrified bonded grinding wheel for surface grinding, (horizontal spindle)

tool and cutter grinding, surface and cylindrical grinding of forms, etc. Advantages are said to include: faster stock removal, reduction of grinding time and tool damage, reduced heat generation and better tool finishes, smaller inventories, etc. *Carborundum Co., Niagara Falls, N. Y.*

RACEWAY COUPLING PLATE

SURFACEDUCT Coupling Plate is a 2" by 5 1/2" steel plate for bolting together lengths of Surfaceduct all-purpose wiring raceway in order to secure a strong and rigid mechanical splice. Maker states coupling plate affords rigidity and safe suspension when duct is used for lighting fixture installations. *National Electric Products Corp., 12 Fulton Building, Pittsburgh, Pa.*



(Please turn to page 148)



The
"DELAWARE BELLE"
 is decked with *Yoloy*



THE Delaware Belle is the "last word" in all-welded, all-steel excursion boat construction. Designed and built by the Wilson Line at its own Wilmington shipyard, this 236-foot liner has maximum carrying capacity, with greatest comfort, safety and satisfaction for passengers.

The decking is light gauge Yoloy. Use of this high-tensile, low-alloy steel results in a much lighter super-structure, without loss of deck strength or rigidity. Extreme stability is an out-

standing characteristic of this vessel's construction. Long deck life, with minimum upkeep, is assured by Yoloy's remarkable ability to resist corrosion.

Yoloy is Youngstown's nickel-copper steel. It is the ideal material for construction wherever dead weight must be reduced without sacrifice of strength. It is available in sheets, plates, strip, bars and tubular products. Write or phone for further information.



The corrugated Yoloy Steel Decking, an exclusive development by Wilson Line, Inc., may be seen in the under deck view in this photograph of the Dance Deck. All three of the Delaware Belle's upper decks are fabricated from Yoloy.



YOUNGSTOWN

THE YOUNGSTOWN SHEET AND TUBE COMPANY

GENERAL OFFICES - YOUNGSTOWN 1, OHIO

Export Offices - 500 Fifth Avenue, New York City

Manufacturers of

CARBON - ALLOY AND YOLOY STEELS

Sheets - Plates - Pipe and Tubular Products - Bars - Rods - Wire - Cold Drawn Carbon Steel Rounds - Tie Plates and Spikes - Conduit - Electrolytic Tin Plate - Coke Tin Plate.

(Continued from page 146)

PORTABLE WATCHCLOCK SOLVES WEEKEND CLOCK PROBLEMS



DETEX Guardsman is a portable watchclock approximately 6" in diameter and 2-3/4" thick. It solves long weekend and holiday shutdown clock problems and furnishes an embossed record on a continuous roll of tape, with a capacity for a full week's night and day registration without any possibility of an overlapping record. Tape cutter permits cutting of tape daily or at any desired intervals. Clock has 11-jewel 8-day movement and is designed for hard usage. Approved by Underwriters' Laboratories and Factory Mutuals. *Detex Watchclock Corp., 76 Varick St., New York, N. Y.*

25-FOOT RECOILING TROUBLE LIGHT

RECOILO-LITE, is a 25-foot independent recoiling trouble light. The cord extends from a 43" retracted length to 25 feet, and is jacketed in neoprene, making it impervious to stream, water, oil, grease and most acids. The Recoilo-Lite is movable to any outlet and adjustable to any desired length by means of safety clamp which also guards against accidental pulling from the socket. *Koiled Kord Division, Kellogg Switchboard & Supply Co., Chicago, Ill.*

REDUCES WATER-TREATMENT COSTS



MODEL U-60 "Filt-R-Stil" water demineralizer is designed to transform ordinary tap water into the chemical equivalent of distilled water. Maker states the unit offers low cost operation, requires no heat, steam, or auxiliary equipment and consumes the equivalent amount of electricity required to light a 6-watt bulb. It is designed to operate at 60 gallons per hour flow rate and may be used to deliver water containing a maximum of 10 parts per minute of ionized solids. A built-in controller indicates the quantity of treated water leaving the unit and measures the electrical resistance of the treated water. *Ion Exchange Products Dept. American Cynamid Co., 30 Rockefeller Plaza, New York, N. Y.*

PACKAGED RESISTANCE WELDING CONTROL

COMPLETE line of nonsynchronous packaged a-c resistance welding controls, known as **Weld-O-Timer**, is available in two frame sizes, the 1200 and the 600. These new controls represent a departure from past practice in that it is possible to effect hundreds of combinations for sequencing and timing from only four factory wire subassemblies and two supplementary subassemblies. Controls may be side-mounted to welder, floor-mounted, or at any convenient place with adjustment controls at welder. *Westinghouse Electric Corp., Buffalo, N. Y.*

AUTOMATIC PARTS INSPECTOR



AUTOMATIC hopper-fed selector is designed to inspect length and diameter of small precision parts such as roller bearings, dowel pins, chain links, etc. Machine can be adjusted to tolerance of .0005". Range of adjustment is 7/32" to 31/32" on diameters and from 9/32" to 3" on lengths. Change from one set-up to another may be done rapidly. The gaging operation segregates parts into one of four classifications—parts within tolerance limits, diameter within tolerance limits and length oversize, oversize on diameter, and undersize on either of both diameter and length. Segregated parts are passed into separate bins. Machine illustrated segregates 3600 parts an hour. *Sheffield Corp., Dayton, Ohio.*

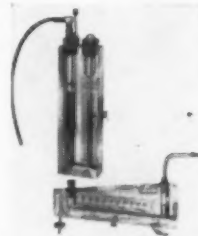
SELF-CENTRALIZING SMALL HOLE GAGE

employs 14 interchangeable extensions to cover the full range from 1/4" to 1/2" and penetrates to a maximum depth of 2 1/4". Maker states it reveals diameter and also roundness, taper, bellmouth and other hole inaccuracies. Inspector can readily see dimensional variations as small as .0001" or as large as plus or minus .004". It shows precisely how much a dimension varies. *Federal Products Corp., 1144 Eddy St., Providence, R. I.*

MODEL 1204 small hole gage makes possible inspection of inside diameters between .250" and .500". It

COMBUSTION TESTING INSTRUMENTS

LINE of combustion testing instruments includes portable and stationary transparent CO₂ indicators, draft gages, manometers and accessories. The model 800 portable transparent CO₂ indicator is said to combine visibility, accuracy and simplicity. The transparent portable draft gage measures all types of air velocities, drafts, and slight pressure changes. Draft indication is said to be continuous, and fluctuation may be observed while adjustments are made. Literature available. *F. W. Dwyer Mfg. Co., 317 S. Western Ave., Chicago, 12, Ill.*



MACHINABLE CAST IRON WELDING ELECTRODE

AIRCO No. 375 is a new electrode for machinable welds on cast iron, which has a high nickel core wire and a heavy extruded coating. Maker states it is easy flowing, results in a sound deposit and that the weld and fusion zone is easy to machine. It is said to withstand hydrostatic pressure, to be applicable to downhand, vertical or overhead positions, and will permit multiple pass welds without cracking. Electrode may be used on a-c or d-c and is available in 5/32" and 1/8" diameters. *Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.*

COMPACT ELECTRIC LIFT TRUCK



YALE High-Lift Platform Model Worksaver is an electrically-powered hand truck that serves as a lift-truck for stacking, picking-up from elevated docks, racks or tailgates. It fills the needs for equipment mid-way between the simple hand truck and the heavy-duty high-lift platform truck. Two models are available; one with a platform to get under a 7" skid and a 66 1/2" lift; the other with a platform to get under an 11" skid, with a lift to 70 1/2". Both have a lifting capacity of 4,000 lbs., turn at right angles within 91", need only 54" aisles, can swing within a circle of 95" radius, and will negotiate a 9% grade. *Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia, 24, Pa.*

(Please turn to page 150)

Here's a tip . . . for users of Molded Plastics

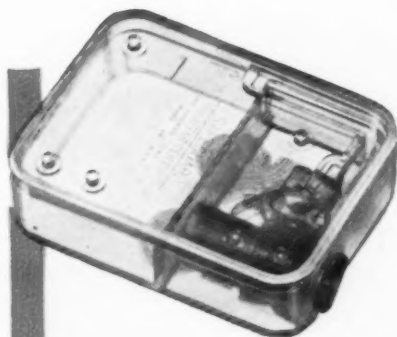


Tip the base of this new Sheaffer "Safeguard" Dip-Type Desk Set on its side . . . stand it on either end . . . turn it over, bottom up. The chances of spilling are negligible. Here is another notable contribution to writing ease and pleasure, thanks to Sheaffer engineering . . . and to Chicago Molded Plastics.

Naturally, the requirements for the plastics base parts of the "Safeguard" Desk Set were exacting . . . fine appearance to match Sheaffer quality; accuracy, for ease of assembly and proper functioning; and dependable production, to keep up with the demand created by Sheaffer's national advertising. So the job was placed with Chicago Molded . . . tools were designed and fabricated by CMPC . . . and parts injection molded of polystyrene in CMPC's spacious, fully equipped Thermoplastics Division.

Your requirements are, perhaps, vastly different. But this job is, we believe, another example of the ability of CMPC . . . the knowledge, experience, and facilities . . . to meet the requirements of 'most any molded plastics job.

So . . . whatever your plans call for . . . thermoplastic materials or thermosetting . . . injection molding or compression . . . large parts or small . . . you'll find it worthwhile to discuss them with a CMPC Service Engineer. There's no obligation.



In order to merchandise this new item properly a quantity of the bases were molded wholly of transparent material. This permits a clear view of all parts. These units are being used to explain and demonstrate the revolutionary "Safeguard" principles to the trade.

**CHICAGO
MOLDED
PRODUCTS
CORPORATION**

1025 N. Kolmar Ave.  Chicago 51, Illinois

Representatives in principal industrial centers

COMPRESSION and INJECTION molding of all plastic materials

(Continued from page 148)

AIR-OPERATED DRUM PUMPS



NEW line of air-operated heavy duty drum pumps is designed to meet requirements of volume users of motor oil and lubricants. These pumps will handle lubricants, oils, sound deadeners,

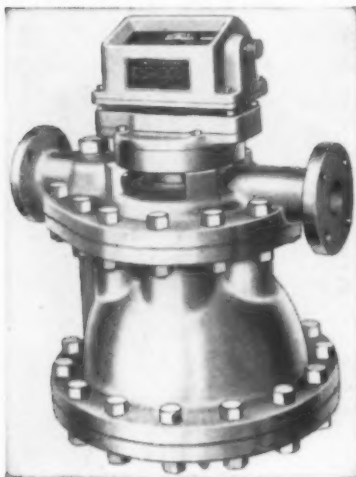
sealing materials, paints and other compounds direct from original containers of 55 gallons capacity. They are available in drum cover types for full-opening drums and in bung-bushing types for mounting in drums equipped with 2" P.T. bung-hole. Both types come in seven pressure ratios, from 40 to 1 to 2 to 1. *Aro Equipment Co., Bryan, Ohio.*

GENERAL PURPOSE FLOOR-WALL CLEANER

CLEANING power of Whiz Uni-foam Concentrate is said to be increased by combination of pure

vegetable base and a wetting agent. Maker recommends it for use on all types of floors, floor coverings, and painted walls — on any surface where plain water may be used. It is soluble in hot or cold water, lathers freely, and does not leave streaks or film after use. *R. M. Hollingshead Corp., Camden, N. J.*

STAINLESS STEEL METER



NEW 1½" 50 gpm stainless steel meter is designed for applications requiring stainless steel equipment to prevent corrosion, discoloration or contamination. Its design and principle of operation are basically similar to that of the Bowser industrial Xacto meter used in the petroleum, chemical and paint industries, etc. Vertical piston operation is said to minimize piston and cylinder wear. Maker states chemically resistant internal parts reduce friction to a minimum. There are few working parts. Maximum working pressure is 250 lbs psi. *Bowser, Inc., Fort Wayne, Indiana.*

GRINDER FOR PARALLEL SURFACES

DOUBLE spindle wet grinder is designed for grinding double and drop forged engineers' wrenches and other parts requiring grinding of parallel surfaces. It features a combination magnetic vibrator and automatic chain feed arrangement for rapid accurate feeding. Oil is used as a coolant. Maker states machine is capable of turning out 2400 wrenches per hour, measuring 8" overall and ground on all four surfaces. *Charles H. Besley & Co., 118-124 N. Clinton St., Chicago 6, Ill.*

DOUBLE spindle wet grinder is designed for grinding double and drop forged engineers' wrenches

BATTERY-CHARGING EQUIPMENT



IMPROVED heavy-duty battery charging equipment for industrial truck service meets all the standards of the Electric Industrial Truck Assn. It is packaged in one unit and consists of a single-circuit battery-charging motor-generator set with its control cabinet mounted on a welded structural steel framework directly above. Equipment comes completely wired and assembled and meets the requirements of an 18-cell, 550-ampere hour, lead acid type storage battery. It charges battery at tapered charge rate indicated. The generator is a conventional 47-volt d-c machine. All operation is completely automatic. *Motor Divisions, General Electric Co., Schenectady, N. Y.*

RHEOSTATS FOR PLATING CONTROL

assure positive contact with the bus bars and insure efficient current transmission), heavy nichrome wire resistors, oversize, resistor brackets and bus bar, and corrosion resistant metal parts. Seven models are available in ranges of 15-30-60, 100-150-200, 300-400-500, 600-750-1000, 1500-2000-2500, 3000-3500-4000, and 30-50-100 amp ratings. Bulletin available. *Udylite Corp., 1651 E. Grand Blvd., Detroit 11, Mich.*

FEATURES of line of Udylite rheostats include heavy-duty cam-type, self-cleaning switches (said to

BENCH FILER

NEW model precision bench filing machine, for filing, sawing, and honing operations incorporates a universal joint clamp which is said to assure 100% vertical file position despite warped or twisted file shanks. A file setting square is supplied for aligning the file, hone or saw. Tilting table is 10¾" by 10¾". The machine has a 1½" stroke and a file shank capacity of ⅜" to ¾". It is powered by a 1½ hp, 110 v, 1724 rpm a-c motor, which provides approximately 350 strokes per minute. Folder No.D137 available. *DoALL Co., 254 N. Laurel Ave., Des Plaines, Ill.*



ANNOUNCE POWERED ROOF VENTILATOR

FIVE sizes and a wide range of capacities are features of the Ject-O-Valve, a straight-through

type powered roof ventilator. A propeller type fan drives exhaust heat, smoke, fumes, etc., through a divided top which opens and closes automatically. It is said to be weather-tight at all times. Descriptive bulletin No. 323 available. *Swartwout Company, Cleveland, Ohio.*

MOBILE CANTEEN



COMPLETE full-course meals for 40 people or a combination of 40 hot meals and 60 light lunches can be served with the model 40 mobile canteen. Sealed containers keep each individual meal hot for two to three hours after preparation. Beverages and soups may be kept hot or chilled in eight 2-quart stainless steel bottles. A removable center compartment provides storage space for sandwiches, etc., or may be used as a cold box for chilled foods and beverages. Canteen is constructed of lightweight aluminum alloy, rolls on rubber-tired casters and measures 42" in length and 22" in width. All parts are said to be readily accessible for cleaning and maintenance. *Mealpack Corp. of America, 152 West 42nd St., New York, N. Y.*

(Please turn to page 156)

FOR TOP EFFICIENCY

WITH POWER HAMMERS

Specify *Thor*

HAMMER ACCESSORIES

There's no limit to the number of jobs that can be done better *and faster* with a Thor Electric Hammer or a Thor Pneumatic Scaling Hammer. So many uses in working with stone, wood, metal or other materials are possible because of the great variety of accessories available for these tools. For best results on construction, maintenance and repair jobs, insist on THOR Accessories—all specially designed to deliver the *extra power* in THOR HAMMERS. Stocked and sold by Thor distributors everywhere.

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. Jackson Boulevard, Chicago 6, Illinois

Export Division: 330 West 42nd Street, New York 18, New York

Birmingham Boston Buffalo Cincinnati Cleveland Denver Detroit Houston
Los Angeles Milwaukee New York Philadelphia Pittsburgh St. Louis St. Paul
Salt Lake City San Francisco Toronto, Canada Sao Paulo, Brazil London, England



Thor Star Drills
(Straight shank, 5, 9, 12, 18, 24" drilling depths)



Thor Star Drills
(Taper shank, 5, 9, 12, 18, 24" drilling depths)



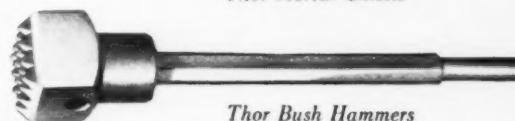
Thor Standard Chisels
(5, 9, 12" lengths)



Thor Bull Points



Thor Mortar Chisels



Thor Bush Hammers



Thor Web Cutting Tools



Thor Wood Gouges



Thor Flat Wood Chisels



Thor Scaling Chisels

... *Thor* ... **PORTABLE POWER** ...
TOOLS

32 ALUNDUM^{*}...

*The greatest abrasive contribution
to increased grinding production
in over 40 years!*



WE expected 32 ALUNDUM abrasive to make a real hit but it has been **even more successful than we anticipated**. From plants everywhere are coming outstanding reports — some of them truly sensational — on the ability of 32 ALUNDUM wheels to lower grinding costs by . . .

1. cutting faster
2. cutting cooler
3. requiring fewer dressings
4. lasting longer

If you are not already using 32 ALUNDUM grinding wheels, it will pay you to get in touch with your Norton abrasive engineer or Norton distributor at once.

NORTON COMPANY, WORCESTER 6, MASS.

Distributors in All Principal Cities

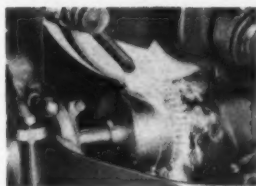
NORTON ABRASIVES

...and Here is **PROOF**

Production Time Cut 25%—Wheel Life Increased

A prominent Ohio machine tool builder changed to 32 ALUNDUM wheels (32A54-J5VBE, 20 x 1 1/4 x 8", dish shape) on his Pratt & Whitney Gear Grinders. Production time was cut 25% and wheel life lengthened 25%. The "32" wheels give a better finish and better tooth shape.

GEAR GRINDING



Production Increased 15%—Wheel Life 33 1/3%

Changing to a 32 ALUNDUM wheel (32A362-N5VBE) for this plunge-cut grinding of automobile axle shafts (3145 and 4340 steel—stock removal .015"-.025") reduced production time to 18 seconds per shaft with 50 shafts ground per dressing compared to 18 for the competitive wheel previously used. Wheel life is one third longer, diamond cost is greatly reduced, finish is improved.

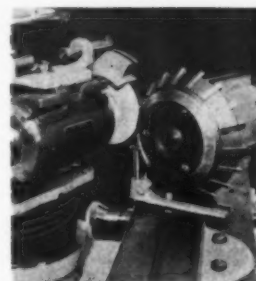
CYLINDRICAL



Six Times Around Without Dressing

When grinding this 10" milling cutter (18 inserted teeth each 3/8 x 1 1/8") with the best previous tool wheel, taking off .002" per pass, a few teeth burned on the second revolution and all teeth on the third. When the operator changed to a 32 ALUNDUM wheel of the same grain and grade (32A46-K5VBE) he found that he could remove .002" from each tooth for six revolutions of the cutter without a sign of tooth burn or wheel loading.

TOOL



Production Doubled—Finish Improved

Surfacing a cast iron core plate (35% steel scrap) containing many holes and grooves necessitated a hard wheel with a consequent rapid dulling action—dressings were necessary every .010" of stock removal—maximum feed per pass was .001". Changing to a 32 ALUNDUM wheel (32A36-G12VBEP) jumped feed per pass to .002" with a stock removal of .020" to .030" per dressing. Production time dropped from 35-40 minutes per plate to 20 minutes and finish was greatly improved.

SURFACE



New Production Job Licked by "32"

A bearing manufacturer started a new production job—the grinding of railroad bearing sleeves of hard SAE 52100 steel, 9" bore, 8" width, stock removal .070" to .080". Several makes of wheels were tried without success—8 or 9 dressings being necessary per bearing. Then a 32 ALUNDUM wheel (32A801-G12VBEP) licked the job. While it can do an entire bearing without dressing the usual procedure is to dress once during roughing and again before the finish pass of .002".

INTERNAL



THERE ARE HUNDREDS OF REPORTS LIKE THESE FIVE IN THE NORTON ENGINEERING FILES

Other NORTON Grinding Wheels for Increased Production

DIAMOND WHEELS

Diamond wheels offer the fastest way to grind the carbides, glass, ceramics, stone and other super-hard products. The three types of Norton Diamond Wheels—Vitrified, Resinoid and Metal Bonded—make it possible to meet the exact requirements of each job.

FOUNDRY WHEELS

The two new Norton resinoid wheels—B-5 and B-7—are breaking production records in many foundries. They cut fast and smooth without sacrificing wheel life.

DISC WHEELS

Norton has disc wheels in the necessary variety of abrasives and bonds to increase production on all kinds of disc grinders. An outstanding combination for many jobs is 57 ALUNDUM abrasive and B-5 resinoid bond.

CUT-OFF WHEELS

There's a complete line of Norton Cut-off Wheels for the quick, economical cutting of metallic and non-metallic rods, bars, tubes and other shapes—in resinoid, rubber and shellac bonds.

MOUNTED POINTS

To increase production in tool and die shops as well as speed up many production jobs there are Norton Mounted Points and Mounted Wheels in over 100 standard sizes and shapes.

NEW! NORBIDE* Dressing Sticks

For wheels 10" and smaller, they are saving time and money in many tool rooms. Small, light and easy to use, they will outwear abrasive dressing sticks 100 to 1. NORBIDE Dressing Sticks are made of Norton Boron Carbide—the hardest material made by man for commercial use.

This
on the
outside



means **stamina**
on the
inside

The stamina you get in all Kennedy Valves is the product of experience, intelligent design and tough metal. Evidence . . . this Kennedy Iron-body Globe Valve. Note the generously proportioned body . . . the thick sections of dense, homogeneous, high-strength cast iron . . . the sturdy ribbed yoke.

These are but three of the many features you get when the name Kennedy is on the outside of the valve you buy. For the whole story on Kennedy Valves, write for the 240-page catalog describing the full Kennedy line of bronze and iron-body gate, globe, angle and check valves, pipe fittings, flanges and other valves and accessories.

• BUY FROM YOUR LOCAL DISTRIBUTOR

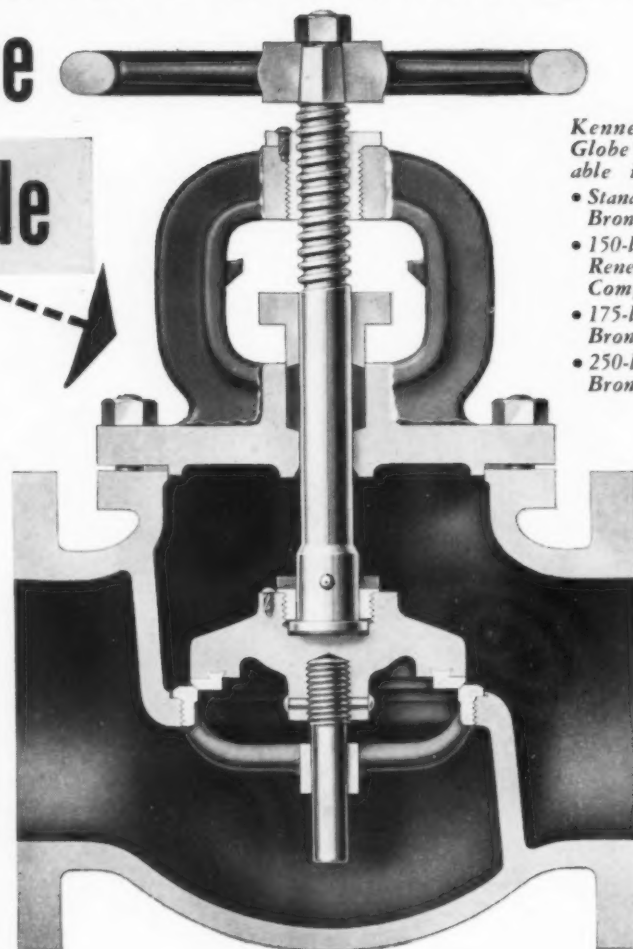
KENNEDY

valves-pipe fittings-fire hydrants

THE KENNEDY VALVE MFG. CO., ELMIRA, NEW YORK *Offices and Warehouses in Principal Cities*

Kennedy Iron-body Globe Valves are available in these types:

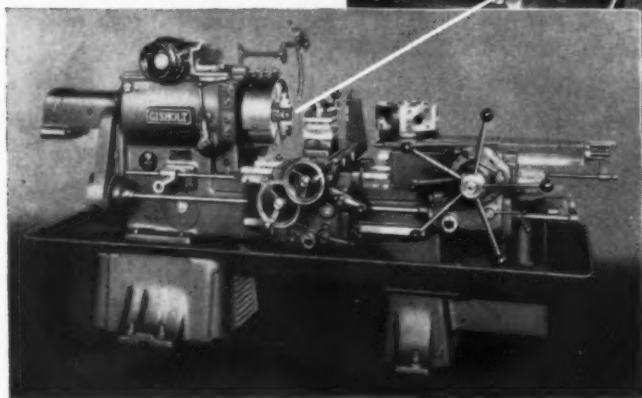
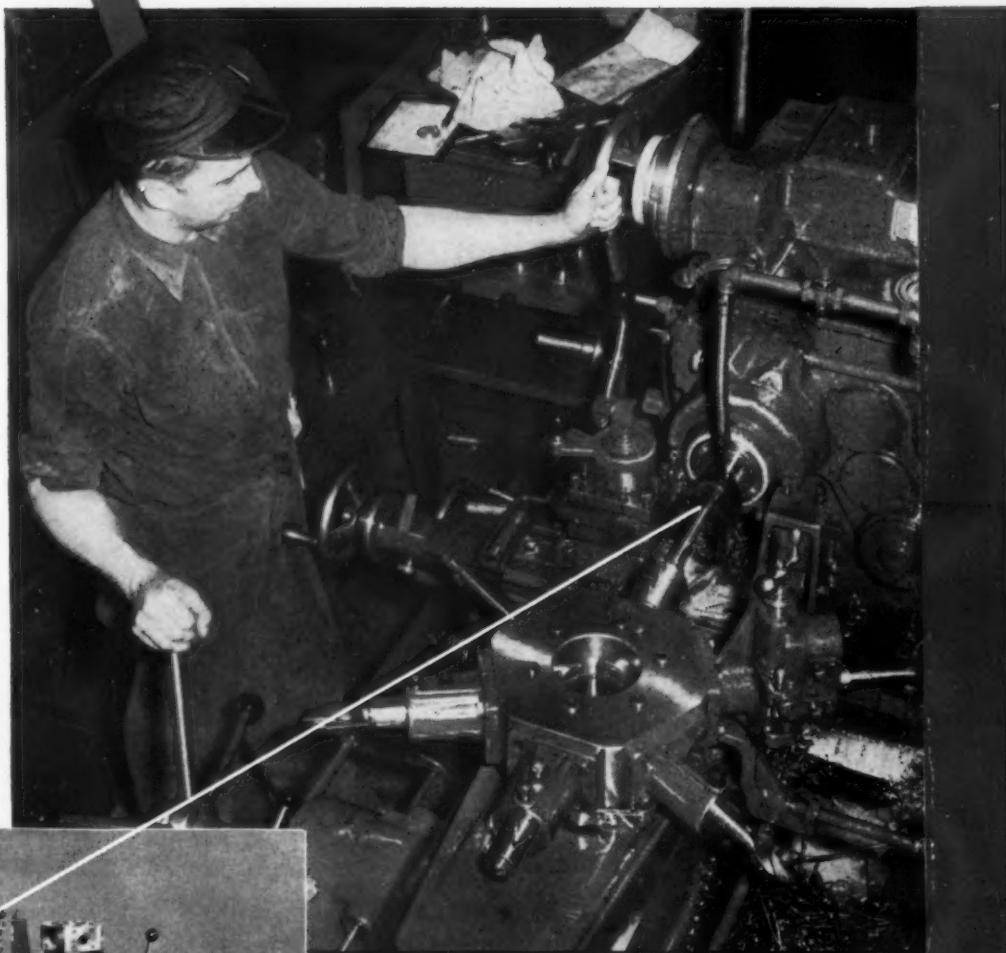
- Standard with Bronze-faced Discs
- 150-lb., with Renewable Composition Discs
- 175-lb., with Bronze-faced Discs
- 250-lb., with Bronze-faced Discs



KV-149

PERPETUATING PRECISION

on Gisholt Spindles



Look for the trade-mark "TIMKEN" on every bearing that goes in your equipment. Then you will be sure of getting all there is in bearings.

Because the Timken Tapered Roller Bearing itself is a permanently precise mechanism, it promotes and perpetuates precision wherever it is installed. It has established a tradition of accuracy on machine tool spindles that has made it preferred by machine tool manufacturers and users the world over.

Typical examples of perpetuated precision stemming from Timken Bearing Equipped

spindles are found in Gisholt Turret Lathes. Gisholt Machine Company, Madison, Wisconsin, is one of the oldest and most enthusiastic users of Timken Bearings. Their files are crammed with case histories of outstanding performances and economies by Gisholt machines in which Timken Roller Bearings have had an important part. The Timken Roller Bearing Company, Canton 6, Ohio.

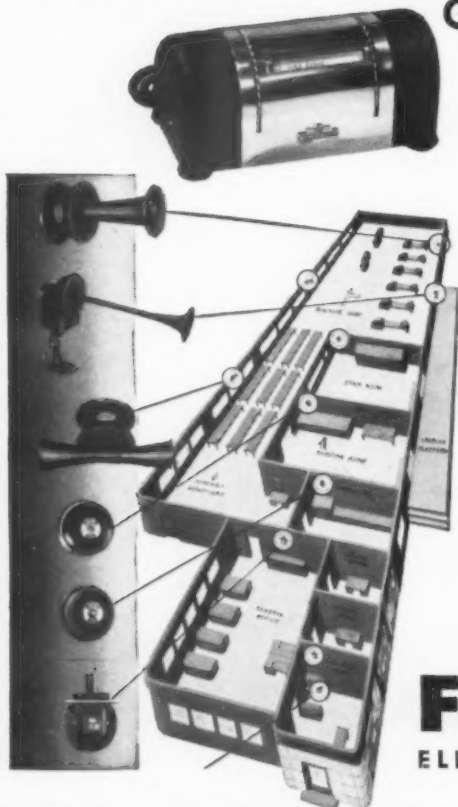
TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER □ THE TIMKEN TAPERED ROLLER □ BEARING TAKES RADIAL AND THRUST —○— LOADS OR ANY COMBINATION



FARADAY KODEMASTER

**Gets the right man
in a jiffy!**



Every factory large enough for a telephone switchboard needs the efficient Faraday Kodemaster. It's the ideal system for locating individuals in a hurry—up to 30 different code signals.

Kodemaster is a unique, compact, fool-proof control for old or new signal systems. May be set up with any number or combination of bells, buzzers, horns, Kodaires, chimes, sirens.

For time-saving signaling, and low installation and maintenance cost, install Faraday Kodemaster. Can be installed by any competent electrician.

FARADAY UNIPACT units are interchangeable, "as easy as plugging in a toaster."

At your electrical distributor's

FARADAY
ELECTRIC CORPORATION
Adrian, Michigan

Get Your Copy of **THIS New BULLETIN**



On "SAFETY" Marking Tools FOR ALL INDUSTRIAL PURPOSES

You need this *New Bulletin*—if you use or buy marking tools. All types of "Safety" steel stamps and dies are illustrated and described—for every marking purpose. Enables you to choose the *correct* tool for your marking application.



134 E. Carson Street

Pittsburgh 19, Pa.

*Write today—
we will gladly
send the number
of copies you
desire.*

HIGH-SPEED THERMOCOUPLE TEMPERATURE INDICATOR

SPEEDO MAX
Indicator is applicable where a large number of thermocouple temperatures must be

logged in a short time. Features are said to include speed, high sensitivity and accuracy, even for low temperatures and short ranges. A single instrument may handle over 100 thermocouples, and switching arrangements can be supplied to meet needs of varied applications. Amplifier unit uses standard vacuum tubes. *Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia 44, Pa.*

A-C LOAD VISUALIZER



NEW AF-1 a-c load visualizer is a lightweight, low-cost analyzer for use on single-phase and balanced polyphase systems. It serves as a standard 0-2.5/5-amp ammeter and a 0-150/300/600-volt voltmeter and can be used with the calculator furnished to determine watts, vars, volt-amperes, and power factor for load surveys, induction motor tests, reactive-power studies and power factor checks on power and lighting circuits. Bulletin GEA-4734 available. *Meter and Instrument Division, General Electric Co., Schenectady, 5, N. Y.*

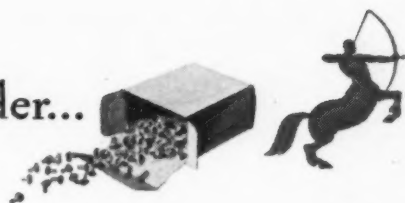
ANNOUNCE ALUMINUM- WHEELED CASTER

WHEEL in this caster is made from aluminum alloy said to have higher tensile strength than cast

iron. It is lighter than a semi-steel wheel; and floor wear is reduced to a minimum. It may be used safely in plants where explosive hazards exist as aluminum will not spark when struck by other metallic objects. Casters are available in swivel and rigid types with 4" x 2, 6" x 2, and 8" x 2 aluminum alloy wheels. *Market Forge Co., Everett 49, Mass.*

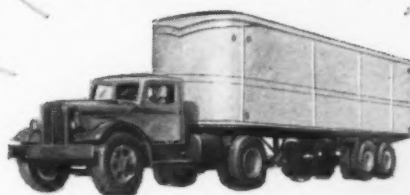
(Please turn to page 158)

for a little order...



or a big order

of brass and copper
... see *Chase*!



CHASE

IMAGINE a nationwide network for copper and brass like this!

Where you can order brass and copper rivets, copper tacks or copper nails, screen cloth by the mile . . . or a car load of sheet brass.

Convenient? Certainly is...and that's Chase service!

In 26 leading industrial cities, Chase warehouses and sales offices are ready to

take your order for brass and copper.

And the large Chase mills and factories are geared to the production of brass and copper materials by the carload.

We can't fill all orders yet, but we'll do our best. Call your Chase warehouse or sales office today.

Chase Brass & Copper Co. Incorporated, Waterbury 91, Conn. A Subsidiary of Kennecott Copper Corporation.

Chase



the Nation's Headquarters for
BRASS & COPPER

WATERBURY 91, CONNECTICUT

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

THIS IS THE CHASE NETWORK . . . handiest way to buy brass

ALBANY* ATLANTA* BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON* INDIANAPOLIS JACKSONVILLE* KANSAS CITY, MO. LOS ANGELES MILWAUKEE
MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER* SAN FRANCISCO SEATTLE ST. LOUIS WASHINGTON* (*Indicates Sales Office Only)

One thumb to a hand

is enough!



A WORK-GLOVE that makes every finger a thumb, makes mockery out of safety! For safety starts with a sure, firm grip . . . a flexibility that allows quick, certain use of the hands in every situation. That's why workers in every phase of industry like JOMAC Industrial Gloves. These remarkable gloves make for flexibility right down to the finger-tips!

What's more, JOMAC Industrial Gloves give longer-wearing protection against hand-hazards of every kind . . . biting edges, rough surfaces, blistering heat. There is a scientific reason for this better protection, for the *longer life* you find in JOMAC Industrial Gloves. JOMAC's famous fabric is composed of hundreds of "cushions" . . . protective "air-cells" locked securely into place by a hidden stitch.

Yes, JOMAC Industrial Gloves give *longer life* . . . up to 7 times the wear of ordinary work-gloves! Washable, they can be laundered repeatedly and used over and over again. That's glove-economy in anybody's language! For full details, write today to C. Walker Jones Co., 6130 N. Lambert St., Philadelphia 38, Pa. Plants in Philadelphia, Pa., Detroit, Mich., and Warsaw, Ind. *Foreign Representatives:* Gillespie & Co. of New York, Inc., 96 Wall Street, New York 5, N. Y.

"SHAKE HANDS WITH SAFETY"

JOMAC INDUSTRIAL GLOVES

THREE TYPES OF JOMAC GLOVES

REGULAR INDUSTRIAL TYPE • HEAT- AND FLAME-RESISTING
SAFETY GAUNTLET-CUFFS

SEALS H-P PIPE LEAKS

HIGH pressure pipe leak clamp to fit all sizes of oil, gas, aromatic fuels, water, etc., pipes from 2" to 8" is said to withstand pressures up to 1100 psi on corroded pipe without leaking. Features include high strength and corrosion resistance, laminated Hycar rubber pad which compresses into corroded area when under pressure, and stainless steel patch plate which slides on clamp-band for most advantageous positioning over leak. Maximum weight 6 lbs. *Marman Products Co., Inc., 940 W. Redondo Blvd., Inglewood, Calif.*



POWER SCYTHE



JARI power scythe is designed to cut weeds, brush and tall grass, mowing right up to trees, posts, plant buildings, etc., and under fences and shrubbing. It is equipped with a 36-inch sickle bar and powered by a four-cycle 1½ hp air-cooled gasoline engine which is said to run for a full 8-hour day on 5 quarts of gas. Two rust-proof steel wheels with wide-faced puncture-proof semi-pneumatic tires provide balance and easy turning. Total weight 145 lbs. One man can cut 4 to 6 acres in an 8-hr day, it is claimed. *Jari Products, Inc., 2938 Pillsbury Ave., Minneapolis, 8, Minn.*

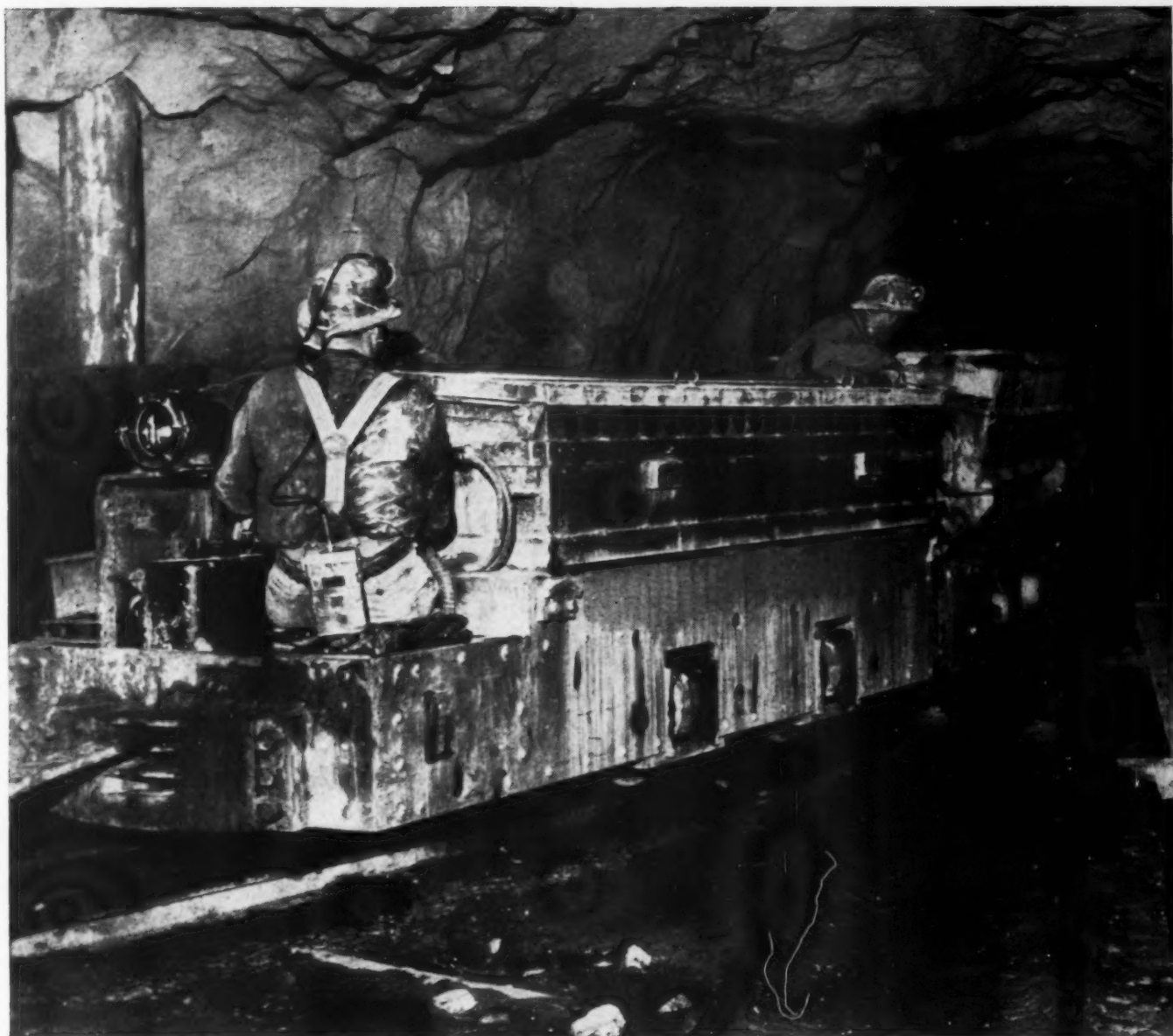
REPLACEABLE OIL FILTER

OIL filter element, known as "Engine-Life" consists of lint-free textiles wrapped in a closely knit muslin, pressure wound in convolutions around a perforated metal core, and covered with a



heavy tubing or muslin jacket. Maker states the filter will not rob oils of additives and that it may be used with any type oil regardless of its use or applications. Replacement elements are available in 260 different sizes to fit all popular makes of filter cases and do not require adapters, springs, spacers or liners to make them fit. *Engine Life Products Corp., El Monte, Calif.*

(Please turn to page 160)



"UNDERGROUND RAILWAY"

Deep underground, in the mines of America, are marvelous haulage systems. Battery powered locomotives and shuttlecars move coal and other minerals . . . on the first leg of their journey to the markets of the world. More mine operators use Exide-Ironclad Batteries for locomotives, shuttlecars and trammers than all other makes of batteries combined.

Whatever the need, there is an Exide Battery of the right size, capacity and construction. Exide Batteries furnish

safe, dependable power for time-saving battery-electric materials handling trucks . . . for telephone, telegraph, railroad and radio station equipment . . . for aircraft, Diesel engine starting, emergency lighting and

numerous other uses. And on millions of cars, trucks and buses, they continue to prove every day that "When it's an Exide, you start."

For 59 years, the name Exide has stood for dependability, economy, safety and long-life. Information regarding the applications of storage batteries for any business is available upon request.

Exide

BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto



**PREFERRED
ON ALL COUNTS...**

CESCO'S IMPROVED Acitex APRONS AND SLEEVES...

● CESCO's famous *Acitex* offers more effective resistance to a greater number of acids, caustics and splashing liquids than other adaptable material.

Research and laboratory testing proved *Acitex*' usefulness for aprons and sleeves. On-the-job tests proved its adaptability, versatility and value.



ACID RESISTANT

Acitex resists caustics, splashing liquids and injurious acids—such as nitric, sulphuric, hydrochloric, acetic, hydrofluoric, carbolic.

COMFORTABLE

Light weight, cool and comfortable to wear. Easily adjusted *Acitex* straps for attractive fit on every wearer.



EXTREMELY TOUGH

High abrasion resistance. Electronically welded seams and double-thick *Acitex* grommets. No metal parts.



ECONOMICAL

Moderate cost plus durability for real economy. Important dollar savings in injury prevention.



Get the best by specifying CESCO *Acitex* aprons and sleeves. Call, write or wire...

CHICAGO EYE SHIELD COMPANY
2320 Warren Boulevard
Chicago 12, Illinois

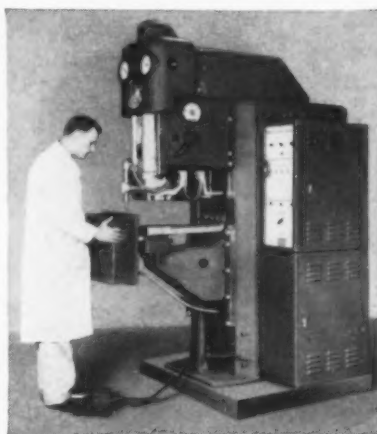


**CESCO
FOR SAFETY**

SYNTHETIC CUTTING & GRINDING COMPOUND

SILVER-CHIP is a non petroleum, synthetic cutting and grinding oil which is said to mix easily with water of any degree of hardness offering a true solution instead of an emulsion. Maker states that water mixtures of 1 to 25, 1 to 50, and 1 to 100 provide high lubricity as well as genuine transparency and are suitable for numerous types of tough metal-cutting jobs. Sample available on request. *Machinery Lubricants, Inc., 31 James St., Boston 16, Mass.*

RESISTANCE WELDING CONTROL



SYNCHRO-TROL is a synchronous-precision welding control available in a complete, unified, factory-assembled package. Each control consists of eight factory assembled subunits and five supplementary subunits making possible hundreds of timing and sequencing combinations. Synchro-Trol eliminates complicated mountings and multiple connections between conductor, weld timer and sequence timer. It may be side-of-welder or floor mounted. Maker states finger-tip control speeds production as each job can be quickly set; and accessibility of parts reduces maintenance. *Westinghouse Electric Corp., P. O. Box 868, Pittsburgh, 30, Pa.*

GREASE TYPE RUST PREVENTIVE

a year outdoors, and two to five years indoors by Brayco-124, a grease type rust preventive. Maker states it will not run or drip at temperatures up to 130° F., and remains soft enough to be removed by wiping, or to flux with regular lubricants. Application is by brush or swab at room temperature, or by hot dipping when heated to 150° F. A solvent solution, known as Brayco-124-70 is also available for cold application by brush, spray or dip. *U. B. Bray Co., 3344 E. Medford St., Los Angeles 33, Calif.*

(Please turn to page 162)

SILVER-CHIP is a non petroleum, synthetic cutting and grinding oil which is said to mix easily with

water of any degree of hardness offering a true solution instead of an emulsion. Maker states that water mixtures of 1 to 25, 1 to 50, and 1 to 100 provide high lubricity as well as genuine transparency and are suitable for numerous types of tough metal-cutting jobs. Sample available on request. *Machinery Lubricants, Inc., 31 James St., Boston 16, Mass.*

MACHINED parts, machinery and automotive equipment may reportedly be kept rust free for up to

The **PURE OIL COMPANY** *U.S.A.*

A Complete Line of
Industrial Petroleum Products

A Pure Oil engineer will help solve your lubrication problems. Write nearest office, or Industrial Lubrication Dept., Chicago, Ill.

Be sure



with Pure

KEEP PRODUCTION ROLLING ON BEARINGS FROM L & S

Two-Fold Source of Supply—L & S manufactures radial, thrust, roller bearings, and pillow blocks.—L & S is distributor for other manufacturers.

Write Today — List quantity, number and brands of bearings you need. You will be advised immediately.

We Pay Best Prices
For Surplus Bearings

**L & S BEARING
COMPANY**

Dept. M-3 P.O. Box 1072
7-5501
OKLAHOMA CITY



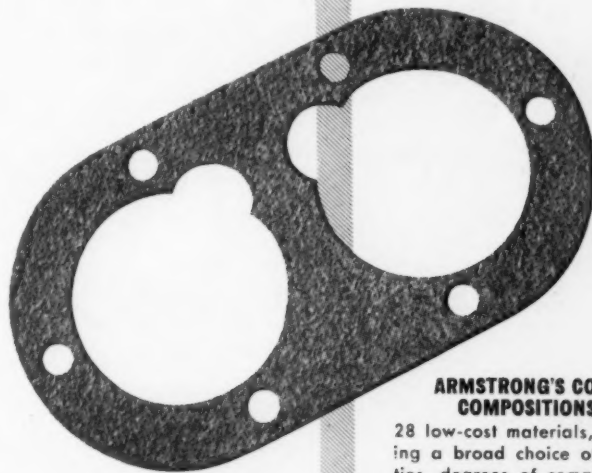
*Write
Today*

GET FASTER GASKET DELIVERY

Specify these standardized materials

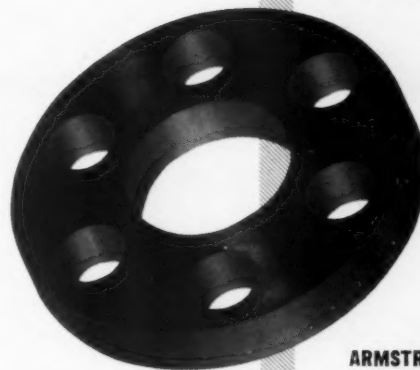
Get the gasket you need in a hurry by specifying one of Armstrong's standardized sealing materials. Four basic types, available in 68 different formulations, provide a wide range of properties that can satisfy almost any gasketing specification. These performance-proved materials not only help you speed production but also reduce the need for the much more costly made-to-order compounds.

An Armstrong representative will gladly give you unbiased recommendations based on our 35 years of gasketing research and experience. Or, if you prefer, send full details of your specific application to the Armstrong Cork Company, Gaskets and Packings Dept., 7206 Arch Street, Lancaster, Pennsylvania.



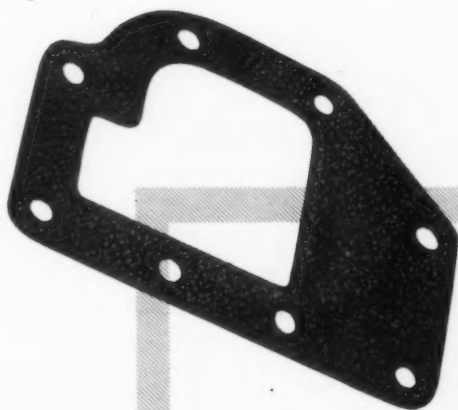
ARMSTRONG'S CORK COMPOSITIONS

28 low-cost materials, affording a broad choice of densities, degrees of compressibility, tensile strengths, and other properties



ARMSTRONG'S SYNTHETIC RUBBERS

19 precisely compounded materials. Available molded or die-cut to your order.



ARMSTRONG'S CORK-AND-SYNTHETIC-RUBBERS

19 compositions, offering true compressibility, extra resilience, high tensile strength, imperviousness to liquids and gases, controlled side flow.



ARMSTRONG'S FIBER SHEET PACKINGS

2 types. No. 1242, low-cost, general-purpose fiber sheet packing. No. 143, non-corrosive, dense, tough, ideal for thin, lightweight gaskets.

ARMSTRONG'S GASKETS • PACKINGS • SEALS



Let **CHAMPION** *Experts INVESTIGATE!*

Champion's lighting engineers are interested only in helping you to get better lighting and thereby increase your production efficiency, safety, working morale and lighting economy. Their unbiased recommendations are freely available to every user of Champion Fluorescent and Incandescent Lamps.

Whatever your lighting problem, large or small, you will find it profitable to take advantage of the Champion combination of lamps of fine quality and lasting dependability, supplied by a competent local distributor who knows industrial service needs and backed by competent lighting engineering counsel.



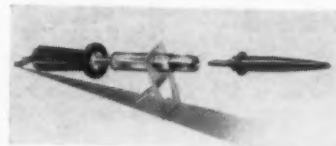
CHAMPION LAMP WORKS

Lynn, Massachusetts

A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.

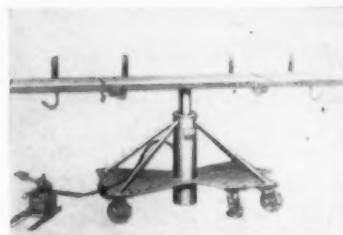


CORDLESS SOLDERING TOOL



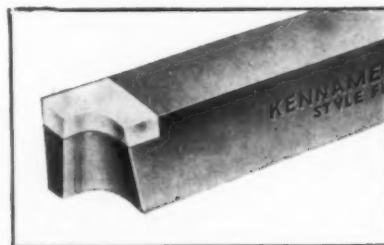
PENCIL-type, cordless, soldering instrument is designed for use in delicate mechanical operations. Known as the Kordless Kwikheat, it is placed in operation by screwing the heater-receptacle into any Kwikheat electric soldering iron. The forged tellerium copper alloy tip is said to hold approximately 680° F. temperature for nearly one minute and reheats in approximately 20 seconds by reinsertion into the heater receptacle. *Sound Equipment Corp. of California, Glendale, Calif.*

HYDRAULIC ELEVATING TABLE



PORTABLE hydraulic elevating table is for feeding strip or sheet metal to shears, rolling mills, punch presses, etc. It is designed to accommodate bundles of stock loaded by overhead hoists or fork trucks. The elevating feature enables the operator to keep stock at the desired height for feeding into dies or shears, etc. The table top consists of one rigid section, same length as the base, plus two removable extensions designed to support longer loads. *LYON-Raymond Corp., 3436 Madison St., Greene, N. Y.*

INTERNAL RADIUS TOOLS



INTERNAL radius tools and blanks are designed for rounding the corners of machined parts. They are form-ground to hold contour when reground on the top surface only. Grade K3H is recommended for machining corners on steel; and grade K6 for machining cast iron, brass, bronze, and light alloys. The complete tools are cataloged style FR, and the blanks style R. They are available for cutting corners of the following radii: 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16" and 1/2". *Kennametal Inc., Latrobe, Pa.*

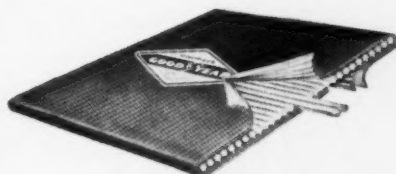
(Please turn to page 164)



HERE are three standout performers that have proved their worth in countless installations. They exemplify the economy, the long life, the tried-and-true dependability you get from all Goodyear Industrial Rubber Products.

Whatever your rubber problem, you'll find the answer in a Goodyear product, specified in the size and construction best suited to your needs by the G.T.M. — Goodyear Technical Man. For on-the-spot advice by this friendly counselor, write: Goodyear, Akron 16, Ohio or Los Angeles 54, California.

**YOU'LL SET
NEW PERFORMANCE
STANDARDS
WITH THESE
OLD RELIABLES**



ENDLESS COMPASS BELTS, for compressors, generators, fans, line shafts and other heavy-duty drives. In many installations they have outlived and outperformed ordinary belts three and four to one.



STYLE M STEAM HOSE for all steam service up to 100 pounds' pressure. Tough, flexible construction with tube specially compounded to hold saturated steam. Tough cover to resist abrasion.



EMERALD CORD AIR HOSE — a truly "super" air carrier. Lighter than ordinary hose, yet far tougher, stronger, longer-lasting, thanks to new construction. Oil-resistant tube. Best buy for heavy-duty service.

FOR HOSE, BELTING, MOLDED GOODS, PACKING, TANK LINING, built to the world's highest standard of quality, phone your nearest Goodyear Industrial Rubber Products Distributor.

Compass, Emerald Cord—T.M.'s The Goodyear Tire & Rubber Company

GOODYEAR
THE GREATEST NAME IN RUBBER



A few of the bends in all types of metals that have been designed and made by Swan.

We concentrate on the thing we know best how to do. Among the specific applications of Swan services are —

All types of bends and coils
Exhaust, oil and hydraulic line assemblies
Inserts for die castings
Intake manifolds
Carburetors
Oil Lines
Frame Assemblies
Flash welding, testing and bending of long tubes for condensers and heat exchangers.

It will cost you nothing to consult our engineers on your tube bending problem.

SWAN ENGINEERING COMPANY, INC.
12-58 Nelson Street, Bloomfield N. J.

MAGNOLIA BEARING METALS

Bearings Wear too Fast?

Repour next time with one of the **MAGNOLIA BEARING METALS**. Lead-base alloys have a much lower coefficient of friction than any other bearing metal—*1/3 that of "genuine" babbitt*. The graphite treatment insures partial self-lubricating.

Ask your dealer—or us—for bulletin with tips on pouring.



Look for the



Flower Trade Mark

MAGNOLIA METAL CO.

14 West Jersey Street, Elizabeth 4, N. J.

Warehouses in Ft. Worth, Chicago, San Francisco and Montreal

C. L. AMOS COAL CO.

General Office

Syracuse, N. Y.

Telephone LD59

Shippers of
Fairmont-Pittsburgh Seam
and
Central Pennsylvania
High and Low Volatile
BITUMINOUS COAL

Branch Offices in

Baltimore, Md.

Cleveland, Ohio

Philadelphia, Pa.

Clarksburg, W. Va.

Albany and Canton, N. Y.

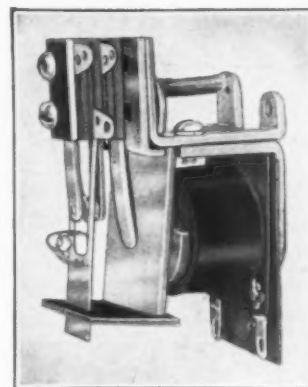
Clarion and Philipsburg, Pa.

C. L. Ames Coal Co. (Canada) Ltd.
Montreal, P. 2.

ANNOUNCE RESINITE ALL-PURPOSE PAINT

RESINITE is the name of a new all-purpose paint, made of base materials developed during the war for military uses. Maker states Resinite is suitable for any indoor or outdoor purpose from painting submarines to kitchen chairs or automobiles. Paint is said to have exceptionally durable qualities and to provide unusually high gloss finish. It is available in a wide range of colors. Literature available. *Resinite Chemical Corp., Dept. 54R, 2542 N. Lincoln Ave., Chicago, Ill.*

SNAP-ACTION SWITCH

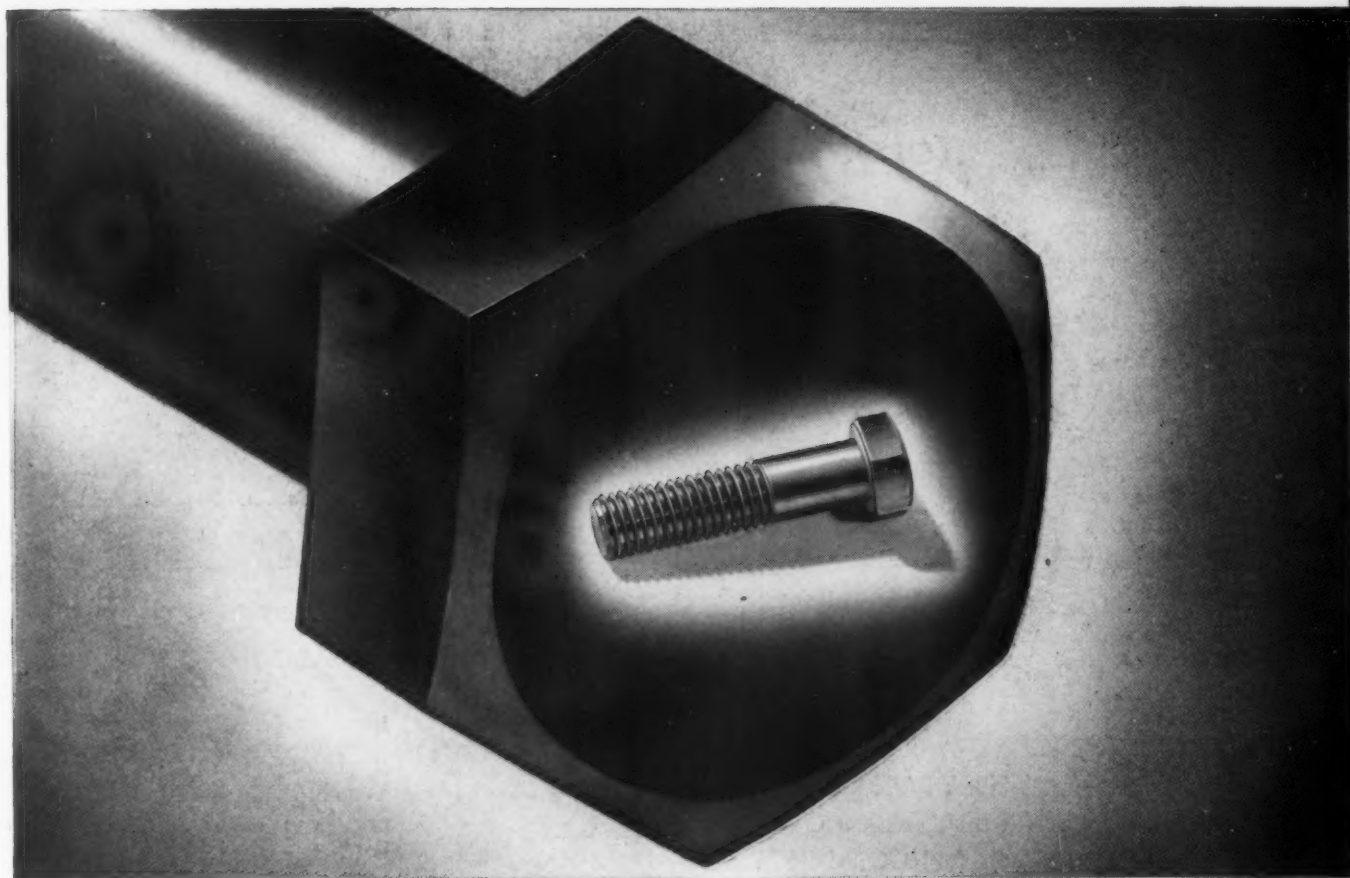


SNAP-action switches in conjunction with standard Guardian relays are said to be particularly suited to control applications involving slow-moving, mechanical devices or where a given stroke is required to provide quick, positive "make" or "break" contact action. Maker states snap-action switch eliminates chattering, arcing, intermittent contact pressure, etc. Used in series 100 relay the switch disconnects the starting winding when the motor reaches running speed and applies additional torque when the motor is overloaded by closing the condenser circuit. Snap action switch relay can be used in place of centrifugal switch normally installed in motor housing. *Guardian Electric Mfg. Co., 1635 W. Walnut St., Chicago 12, Ill.*

SEVEN TUBE HEAT EXCHANGER

SEVEN tube "Karbate" impervious graphite shell and tube heat exchangers are made in three standard sizes of 4'3", 7'3" and 10'3" lengths, consisting of 1" ID by 1 1/4" OD "Karbate" tubes in bundles encased in 6" ID steel pipe shells. The units may be used as heaters, coolers, boilers, or condensers in vertical or horizontal positions. Maker states they are available for use under high corrosive conditions and will carry temperatures up to 338° F. (170° C.) and a working pressure of 50 lbs psi. Standard nozzle connections permit installation with piping connections of almost any material. Catalog section M8808 available. *National Carbon Co., Inc., 30 E. 42nd St., New York, N. Y.*

(Please turn to page 166)



WHEN YOU GET MAXIMUM HOLDING POWER
PER DOLLAR OF INITIAL COST . . . THAT'S

t.f.e. True
Fastener
Economy!

It's the cost of *using* a fastener that counts. Wherever maximum fastener strength is required . . . such as for engines and machine tools . . . it is True Fastener Economy to specify high-quality Cap Screws.

RB & W Cap Screws for Utmost Security

Raw material that is subjected to the most rigid mechanical and physical examination . . . cold-forming on the most modern machinery . . . continuous inspection at every stage of manufacture . . . contribute to your assurance that RB & W Cap Screws will have uniformly high physical properties and a finish that enhances the appearance of the finished product.

Such facilities as spheroidizing furnaces, close control heat treating, finest heading and threading equipment enable RB & W to manufacture its products to meet the severe stress conditions and close tolerances required of highest quality Cap Screws.

You Get T. F. E. When You

1. Reduce assembly time to a minimum by savings through use of accurate and uniform fasteners
2. Make your men happier by giving them fasteners that make their work easier
3. Reduce need for thorough plant inspection, due to confidence in supplier's quality control
4. Reduce the number and size of fasteners by proper design
5. Purchase maximum holding power per dollar of initial cost, by specifying correct type and size of fasteners
6. Simplify inventories by standardizing on fewer types and sizes of fasteners
7. Save purchasing time by buying larger quantities from one supplier's complete line
8. Contribute to sales value of final product by using fasteners with a reputation for dependability and finish

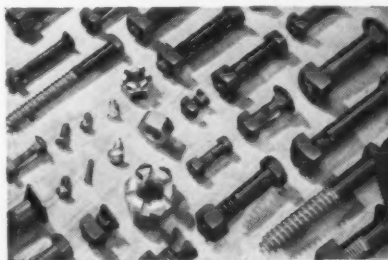
RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

102 years making strong the things

that make America strong

RB&W bolts, nuts, screws, rivets and allied fastening products are manufactured in a broad range of styles, sizes and finishes.

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Portland, Seattle. Distributors from coast to coast. By ordering through your distributor, you can get prompt service from his stocks for your normal needs. Also—the industry's most complete, easiest-to-use catalog.



RB & W
THE COMPLETE
QUALITY LINE





**OUR BEST DISC
... and YOURS**

**SPEED-WET*
METALITE***

ALL-RESIN BONDING
ALL-FIBRE BACKING
ALL-DURABONDED COATING
ALL-OUT PERFORMANCE

To a veteran industrial disc user, the three improvements which distinguish the new Speed-wet Metalite Fibre Disc mean substantially increased grinding performance. All-resin bonding, for instance, yields resistance to heat and loading. The all-fibre backing contributes spring-like flexural strength. The Durabonded* coating provides stamina and rugged grit anchorage. Taken all together, this three-fold improvement yields a disc of vastly improved cutting-speed, finishing properties and long life.

Field reports, wear-out tests and on-the-job comparisons all testify to the increased production performance of Speed-wet Metalite Fibre Discs. In fact, never before have so many people expressed so much praise for any disc we ever made. That's why we say, "Our best disc—and yours"!

Ask your Industrial Supply Distributor to furnish a test quantity of Speed-wet Metalite Fibre Discs next order.

* Reg. U. S. Pat. Off.

BEHR-MANNING
(DIVISION OF NORTON COMPANY)
TROY, N. Y.

SEVEN YEARS
MANUFACTURERS
OF QUALITY
COATED ABRASIVES
FOR
SEVENTY FIVE
YEARS
BEHR-MANNING
1872-1947

INSIDE MICROMETER

RIMAT inside micrometer provides a direct reading. Maker states it saves time when machining back of a flange or boring recesses that have to be kept to close limits. The ends of the measuring pins and all surfaces are hardened and ground. Graduations are clear-cut. The micrometer has a range of 1" and is available in two sizes, the 3" and the 4" size with extra measuring rods up to 6"; and the 6" size with extra measuring rods up to 12". Special sizes are made to order. *Richards Machine Tool Co., Glendale, Calif.*



DRY GAS INSECT CONTROL



NEW principle of insect control is featured in Commando aerosol gun, which converts aerosol concentrate to gas by means of a thermostatically controlled electric heating process. The dry gas is said to be deadly to cockroaches, mosquitos, flies, bedbugs, spiders, moths, fleas, ants, silverfish, weevils, etc. It leaves no oily film and will not contaminate food according to manufacturer. The gun operates on 115 volt ac-dc current and weighs 6 lbs. It has no moving parts. *Commando Division, Mayfair Industries, 2442 Irving Park Rd., Chicago, 18, Ill.*

SPRING TENSION CLAMP

NEW spring clamp is said to be especially effective for skin, wood, plastic, or metal fabrication, template layout, and wherever uniform pressure and speed in applying and releasing are vital factors. It is applicable with either pliers or gun and may be adjusted to secure up to 70 lbs pressure. Use of a special spring is said to make possible pressures up to 100 lbs. The clamp is available in three standard sizes and may be ordered in special dimensions. *Aircraft Tools, Inc., Los Angeles, Calif.*



(Please turn to page 168)

Snap-on

IMPACT SOCKET

Snap-on

IMPACT SOCKETS

For all types of Power Impact Wrenches

SNAP-ON TOOLS CORPORATION

... have the strength and toughness that meet the demands of speed and safety

Under constant, punishing blows from powerful pneumatic drivers, Snap-on Impact Sockets prove their ability to perform dependably and efficiently. Specially designed from superior alloy steel, these sockets are tough . . . they fit accurately . . . lock securely, contributing to greater operating speed and safety.

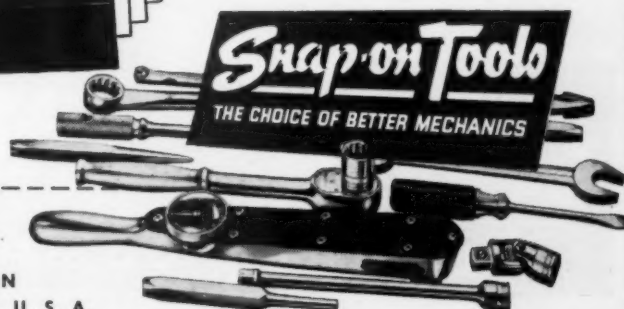
Snap-on Impact Sockets are available in hexagon and square sizes to fit $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", 1", and $1\frac{1}{2}$ " square drive impact wrenches. Available through Snap-on's nationwide, direct-to-user tool service.

Send for Catalog M-46!

SNAP-ON TOOLS CORPORATION

8048-F 28th AVENUE • KENOSHA, WISCONSIN

International Division: Kenosha, Wisconsin, U. S. A.



9 times
out of 10

CULLMAN *Stock Design* SPROCKETS

will do the job—Better!

With 2,000 types to select from—you are almost certain to find just the size you need for practically every transmission requirement—*ready for immediate delivery*. Cullman Sprockets—produced by fast, low-cost, high-precision methods—assure top operating efficiency. "Specials," too, are *quickly available*—made up by exclusive Cullman methods and specialized equipment.



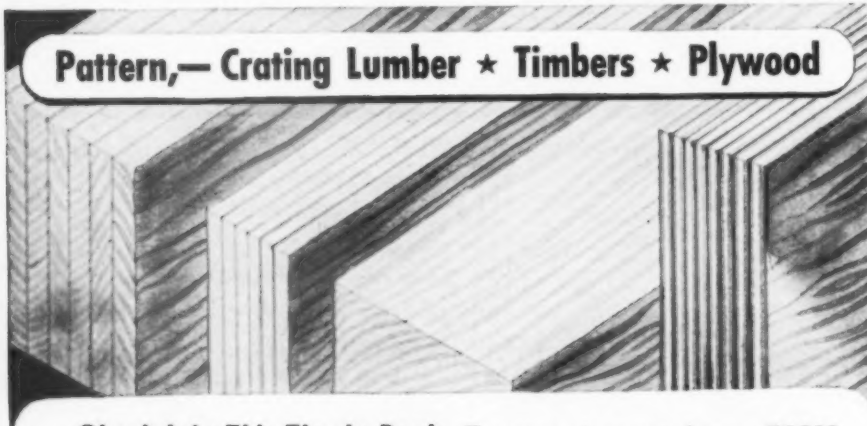
Write today for free catalog containing useful data and helpful facts for sprocket users. It lists dimensions.

CULLMAN WHEEL COMPANY

1352-P. Altgeld Street

Chicago 14, Illinois

Pattern,—Crating Lumber ★ Timbers ★ Plywood



Check Into This Timely Deal: Features 4 scarce items, PLUS the combined facilities of these three great lumber suppliers. Means less red tape. Offers best possibility of getting the lumber you need. Just send your one order to any one of the three addresses below, and it will get the pick of an accumulated supply of lumber, outstanding today in quantity and selection.

**UNION
WHOLESALE**
YOUNGSTOWN 8, OHIO
Phone: 4-4406

DOUGHERTY
CLEVELAND 3, OHIO
WILLOW RANCH, CALIF.
Phone: Diamond 1200

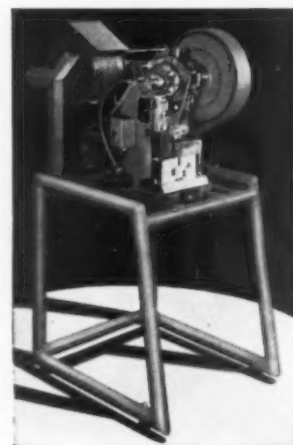
KEYSTONE
PITTSBURGH 3, PA.
Phone: HEmlock 0700

LUMBER COMPANY

MICROMETER IMPROVED BY TUBULAR STRUCTURE

IMPROVED measuring accuracy is said to feature Tumico micrometers made with tubular instead of solid frames, which cuts weight up to 50%. Other features include a wear-take-up spindle bushing assembly which compensates for wear at the frame and a three point take-up which simplifies precision adjustment. Tubular frame micrometers are available in a variety of types and sizes including: the conventional type (0" to 24"); the blade type (0" to 4 1/2"); the roller mill type (3" or 6" throat depth); the bow type (0" to 96"); and an over-the-bar type (8" to 28" sizes). They may be obtained individually or in sets. *Tubular Micrometer Co., St. James, Minn.*

SOLDERLESS WIRE TERMINALS



AUTOMATIC machine installs solderless terminals on solid or stranded wire in sizes from 22 to 10 and in special cases up to No. 6. It is said to utilize a continuous strip of solderless terminals and an automatic crimping cycle to achieve production speeds in excess of 3300 identical electrical connections per hour. Maker states it is designed to reduce the cost of connections and does not require special skill in operating. *Aircraft-Marine Products, Inc., 1575 No. 4th St., Harrisburg, Pa.*

GEAR & SPLINE THREAD WIRES

FIVE times longer wear than ordinary high speed steel wires is claimed for new chrome plated thread, gear and spline wires. Manufacturer states that in addition to greater economy, this longer wear factor means five times longer retention of the initial wire tolerance of only .000025". Company also offers carbide wires said to give 30 to 50 times wear of steel wire. Detailed information in catalog 47. *Size Control Division, American Gage & Machine Co., 2500 Washington St., Chicago, Ill.*
(Please turn to page 170)



HOW WE TOOK THE SOCK OUT OF SHOCK!

Another top performance by a **BWH** product

These huge, prefabricated slabs are the new "face" of a large western dam. Before they're applied, the surfaces must be cleaned with sand. And the entire face of the dam must be chipped and sand blasted in preparation for the new facing slabs. Doing these jobs with old-style sand blast hose often gave the operator an electric shock, sometimes very severe.

The reason is simple: Modern cutting agents and their increased velocities build up static electricity by friction. It accumulates along the interior of the hose tube... finally explodes like a miniature bolt of lightning... sometimes destroying the usefulness of the hose. But, much

worse, it can give the operator a bad jolt.

BWH engineers went to work on this problem. They developed Bull Dog Sand Blast hose, featuring a specially compounded rubber tube stock that carries off most of the static electricity through the tube itself. What's left isn't enough to damage the hose. And the danger of shock to the operator is greatly minimized.

The "shock-absorber" tube of this Bull Dog Sand Blast Hose is wrapped with strong rubberized duck and enclosed in an abrasion-resisting cover. The hose works so well that it has been approved

by countless safety engineers. It was used exclusively on this dam refacing job... with excellent results.

Bull Dog Sand Blast Hose is just one of the many quality products manufactured by BWH. Whatever your need for industrial rubber goods, look to BWH for dependable ruggedness... BWH distributors for dependable service.

HAVE YOU A JOB WHERE STAMINA COUNTS?

Bring us your toughest problems... we're specialists in solving them. Consult your nearby BWH distributor or write direct.

Another Quality Product of

BOSTON WOVEN HOSE & RUBBER COMPANY

Distributors in All Principal Cities

WORKS: CAMBRIDGE, MASS., U. S. A. • P. O. BOX 1071, BOSTON 3, MASS.

CAN YOU GUESS THE ANSWERS?

HOW

CAN A BROKEN CABLE PROMOTE SAFETY?

Samples of aircraft control cable are tested on machines which stretch the samples until they break. Cables must be many times stronger than is actually necessary. Aircraft cable, fittings and assemblies are made by ACCO's Automotive and Aircraft Division.

DO

IMITATION PEARLS COME FROM THE SEA?

Yes. They are made from pulverized silvery scales of herring. Fishing for herring—or other ocean fish—requires quantities of wire rope—much of it made by ACCO's Hazard Wire Rope Division.

HOW

MUCH WIRE IN A 100 FT. FENCE?

A 6-foot high chain link fence takes more than 1½ miles of wire per 100 feet. Hundreds of miles of chain link fence are made by ACCO's Page Steel and Wire Division for protecting homes, factories, cemeteries, parks and other properties.

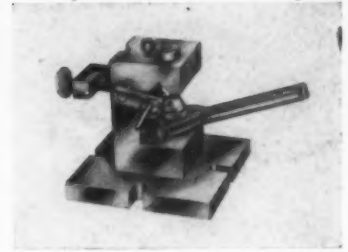
ACCO Products Include: AMERICAN Chain • TRU-LAY and LAY-SET Preformed Wire Rope • TRU-LAY Cable and TRU-LOC Swaged Terminals for Aircraft • PAGE Wire, Chain Link Fence and Welding Rods • CAMPBELL Abrasive Cutters • READING-PRATT & CADY Valves and Fittings • PENNSYLVANIA Lawn Mowers • MARYLAND Bolts & Nuts • "ROCKWELL" Hardness Testers • WRIGHT and FORD Hoists • HELICOID Pressure Gages • MANLEY Automotive Service Equipment.

ACCO



AMERICAN CHAIN & CABLE BRIDGEPORT CONNECTICUT

DRILL JIG SAVES DOWN-TIME



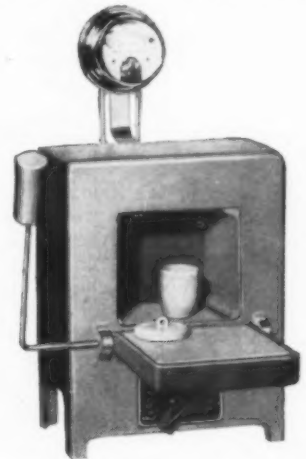
ALL-PURPOSE drill jig is designed to eliminate fixtures and to reduce machine down-time to an absolute minimum. It is mounted on a 4' by 4" by ½" removable base and stands 37/8" high. Holes ranging to 5/16" diameter can be accurately drilled and duplicated in stock up to ¾" O.D. Cam-action handle provides quick locking. On the opposite "V" groove, material up to 1" diameter can be accommodated. This tool may also be used as a grinding fixture. Matco Tool Co., 2830-36 W. Lake St., Chicago, 12, Ill.

FRACTIONAL HORSEPOWER UNIVERSAL MOTOR

GENERAL purpose universal motor is rated at 1/10 hp at 5,000 rpm, ac-dc, and features a spindle with a

¾" shaft extending in both directions and double shielded ball bearings that are said never to require oiling. The outside diameter of the motor is 3¼". It is mounted on a pedestal and supplied with three step pulley, foot rheostat, and reversing switch. L & R Mfg. Co., Arlington, N. J.

PORTABLE ELECTRIC FURNACE



MODEL GTP portable electric furnace features a new type of stepless heat control whereby any desired temperature between 500° and 1850° F. can be selected and automatically maintained. Inside dimensions are 4" wide, 3¾" high and 3¾" deep. Unit weighs 15½ lbs. It is available for use on a-c or d-c of any cycle, and is equipped with indicating pyrometer calibrated in Fahrenheit and Centigrade scales. Thermo-Electric Mfg. Co., 474 W. Locust St., Dubuque, Iowa.

(Please turn to page 172)

Now, For The First Time....

The Measured Quality of Each Lot of Springs Can Be Seen at a Glance

Quality Engineers have long predicted that some day suppliers would submit a record of quality to their customers and that this record would become part of a new era in vendor-customer relationships.

That day is here for Hunter customers.

Hunter now makes available to customers a report of the measured test loads for every lot of springs in the form of a frequency distribution. These Q.R.'s (Quality Reports) will be mailed to chief engineer, inspector or

other person designated. The Q.R. of the sample drawn from each lot of every item will be sent as the lot clears Hunter's final inspection.

These reports enable one to compare quality lot-for-lot, consider tolerance revisions, reduce customers' sampling without sacrificing quality insurance . . . will lead eventually to a comparison of quality vendor-for-vendor.

Hunter believes it is the first in industry to make this valuable service available to all customers.

1003*

QUALITY REPORT No.

PRODUCT	COMPR. SPRING	CUSTOMER	QUOT. No. 21621-A
CHARACTERISTIC	L @ P = 25#	PART NO. K-6162713	REF. 58-316.1
INSP. METHOD	217-PM-27-1	SPECIFIED LIMITS	24.2-25.8# @ 2.000"
SAMPLE DRAWN	AFTER CAD. PL.	EQUIV. INSP. LIMITS	1.965-2.035" @ 25.0#
HPS ORDER NO.	22430	25160*	
CUSTOMER ORDER NO.	16241	17432	
INSPECTED BY	EBC	R.W.B.	
DATE	11-25-46	1-21-47*	

1.950		
1.960		
60	MIN.	
65	24.2#	
70	II	
75	III	
80	III III	
85	III III III	
90	III III III	
95	III III	
2.000	III	
5	II	
10		
15		
20		
25		
30	25.8#	
35	MAX.	
40		

HUNTER-PRESSED STEEL COMPANY
LANSDALE, PENNSYLVANIA

Spirals, Metal Stampings, Wire Forms, Mechanical and Electrical Assemblies

1-T-E Circuit Breaker Co.
Reveals 57% Reduction
In Slotting Time!

**Nelco Carboloy-Tipped
Tools Cut 100 Slots
IN 1.4 HOURS**
Instead of former
3.2 hours with usual
type steel cutters

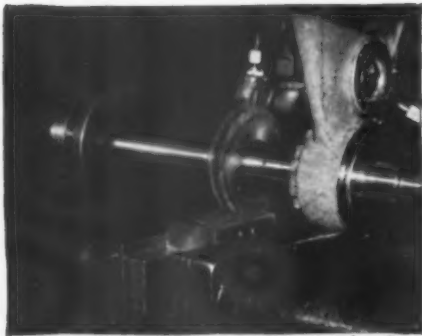


Photo Courtesy of 1-T-E Circuit Breaker Co.

In Gangs of 2 (Sometimes 3)
Nelco Carboloy-Tipped Cutters Set
New Records In Doubling Production

**Compare This Operation
Record Now!**

Job: Cut slot $\frac{1}{2}$ " deep, 3" long, .252 wide.
Material: Hard extruded copper terminal block.

Machine: Kearny & Trecker, 20 CSM Milling Machine, Horizontal Type, Spindle RPM of 1250.

With Usual-Type Steel Cutters

3.2 hours to cut 100 slots.
Table feed of $5\frac{1}{4}$ " per min.
Did not hold size due to high amount of wear caused by hard copper.

**WITH NELCO CARBOLOY-
TIPPED CUTTERS**

1.4 hours to cut 100 slots.
Table feed of 90" per min.
3200 slots obtained before dulling or loss of size occurs.

All Nelco Tools are designed and made to make production faster, better, cheaper. Write for the new Nelco catalog today—and for the name of the Nelco distributor nearest you.

NELCO
TOOL CO., INC.

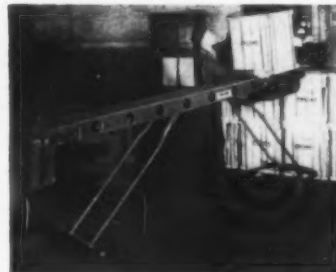
For That EXTRA EDGE In Production
270 Hamilton Avenue, Dept. 9 Brooklyn 31, N. Y.

TRACTOR-CAPSTAN COMBINATION



A14V Shop Mule Tractor has a 2000 lb. line pull vertical capstan winch and special trailer hitch. It is powered by an International 4 cyl. U4 engine. Drawing effort of tractor is 2400 lbs. It weighs approximately 3000 lbs., is 42" wide, 80" long (less coupler or trailer hitch) and 59" high overall. This model has varied industrial and construction uses where capstan can be used to advantage. *W. F. Hebard & Co., 336 W. 37th St., Chicago, Ill.*

PORTABLE POWER CONVEYOR



TOTE-All Packaged Material Zephyr is the name of new lightweight portable power conveyor for handling bags, boxes, crates, cartons, baskets, etc. It is made of lightweight corrosion and abrasion resistant alloy steel. The 10 ft. model weighs 291 lbs. complete with power unit and undercarriage. Electric motor coupled direct to gear reducer provides the power. Overall conveyor depth is $5\frac{1}{2}$ " and the belt width is 8". Either end of the 10 ft. model may be raised to 6 ft. height. Recommended carrying capacity—40 lbs. to the foot, distributed load. Literature available. *Material Movement Industries, 310 So. Michigan Ave., Chicago, 4, Ill.*

**MINIATURE
ALLOY STEEL
BALL
BEARINGS**

FULL-race radial bearings of $\frac{1}{4}$ " to $\frac{3}{8}$ " OD, in inch sizes, and pivot (angular ball-contact) bearings from $5/32$ " to $3/8$ " OD, in both inch and metric dimensions are said to provide accuracy, low friction, high capacity and long life. Normal tolerance for all sizes and types is ABEC 1 (standardized at 68°F). Radial bearings are also available in ABEC 5 (A-series) for finer requirements. Special non-corrosive or non-magnetic materials are also available. *New Hampshire Ball Bearings, Inc., Peterborough, New Hampshire.*

CARBIDE TOOL GRINDER

REGULAR grinder for rough work is mounted on the left side of new carbide tool grinder and a cup wheel for accurate finish grinding is mounted on the right. The work table is adjustable to desired angles, height and wheel wear. The grinder is equipped with an eye shield, tool tray, water pot and guards with exhaust connections. Power is provided by a 220-440, 550 volts, 2 or 3 phase, 50 or 60 cycle motor, totally enclosed. Machine is styled model 260. *Bradford Machine Tool Co., Cincinnati, 4, Ohio.*



**PLASTIC
MASKING
LIQUID
ANNOUNCED**

PLASK, a plastic masking liquid, may be applied with a brush. It dries in less than five minutes and peels off easily in large sheets. It may be used on glass and all types of unfinished plated, or finished non-porous metal surfaces including baked synthetic enamel. Coverage is about 200 sq. ft. per gallon. Its use is said to cut masking time 50 per cent. *Servewell Products Co., Inc., 6523 Euclid Ave., Cleveland, Ohio.*

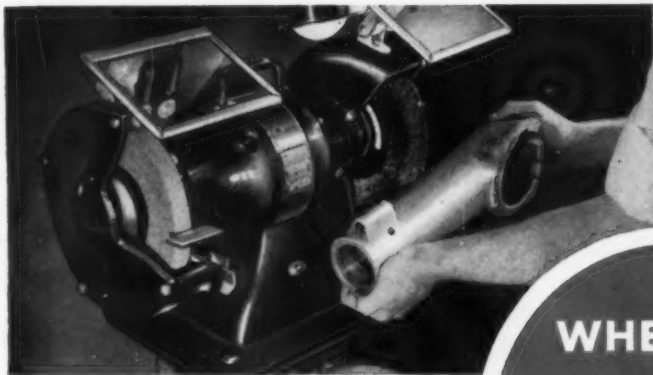
(Please turn to page 176)



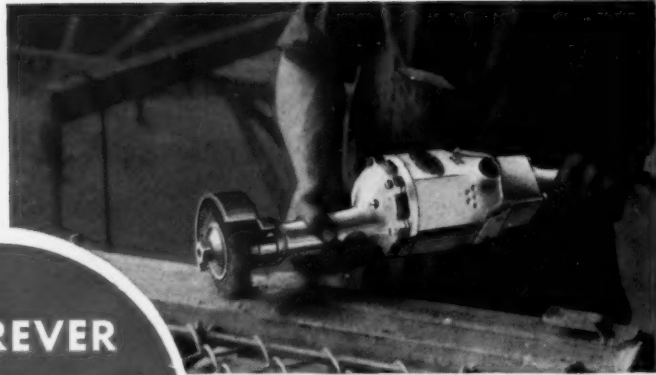
**Welded Stainless
Tubing**
4" to 14 $\frac{3}{4}$ " O.D.

Uniformity in roundness and in quality of welding characterizes Pittsburgh Piping Welded Stainless Tubing. Available in most stainless alloys, in sizes 4" O.D. to 14 $\frac{3}{4}$ " O.D., and in wall thicknesses ranging from $\frac{7}{64}$ " to $\frac{1}{2}$ ". Write for data sheet.

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST.,
PITTSBURGH, PA.

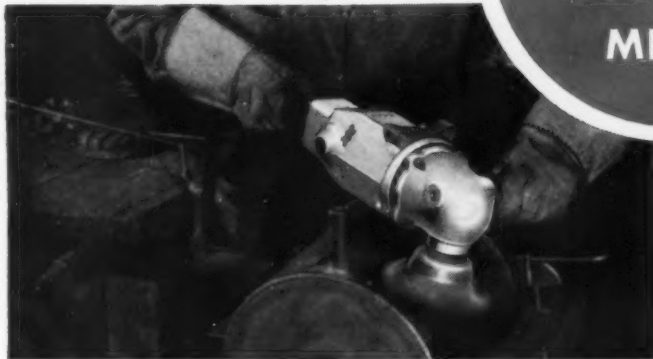


USE THEM WITH BENCH GRINDERS—Whirlwind Wire Wheel Brushes come in six wheel sizes from 4" to 12" in 1, 2 or 3 sections; and in .014", .0118" and .005" wire. Adapters fit them to almost any arbor or spindle.

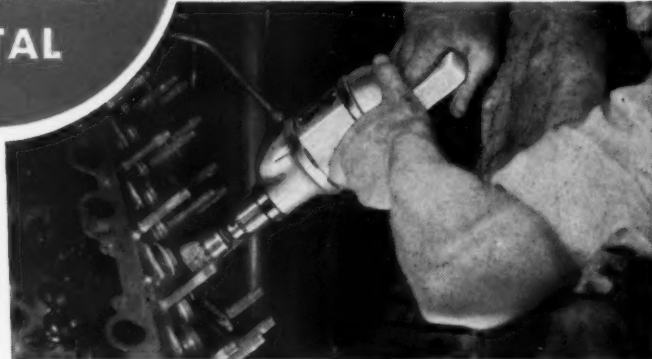


USE THEM WITH PORTABLE GRINDERS—Whirlwind Wire Wheel Brushes come in 4" to 8" wheel sizes; made of .014" wire for rough cleaning, .0118" wire for high-speed buffing, .005" wire for fine burnishing.

WHEREVER
YOU'RE
CLEANING
METAL



USE THEM WITH PORTABLE SANDERS—Whirlwind Wire Cup Brushes come in 4", 5" and 6" sizes, made of .022" wire for tough cleaning jobs. Brush has $\frac{5}{8}$ " 11-thread bushing; threads on sander spindle.



USE THEM WITH ELECTRIC DRILLS—Small Whirlwind Cleaning Brushes are ideal for work in close quarters. Available in several shapes, fitting angles, cavities and grooves.

BETTER BUY WHIRLWINDS* for Better Brushing at Top Speed



It's easy to see why Black & Decker Whirlwind Wire Brushes stand up longer and give you more for your money on high-speed metal working jobs. The simple truth is that an exclusive, patented lock anchors each tuft in place, separately, securely, to stay—while their *crimped* wire gives extra life and spring; maintains an even, compact brushing surface.

Whirlwinds speedily remove rust, carbon, scale, old paint, light weld spatter, grease or tar—clean machinery, parts, castings, tanks, structural metal—prepare surfaces for welding—produce a fresh surface that holds paint—do high-speed buffing and fine burnishing or finishing. *Order them today* from your nearby Black & Decker Distributor. Write for our catalog to: The Black & Decker Mfg. Co., 664 Pennsylvania Ave., Towson 4, Md.

*Trade Mark Reg. U. S. Pat. Off.

LEADING DISTRIBUTORS  EVERYWHERE SELL

Black & Decker
PORTABLE ELECTRIC TOOLS





WHEREVER you are . . . we're neighbors!

You can forget about distance barriers when you're looking for highest grade molded plastics, delivered *on time*, at competitive prices. That's because there's a General Industries man "just across your back fence" . . . ready and waiting to assist you in solving *any* plastics molding problem.

To customers in *every* direction of the compass, we've been providing the best in molded plastics . . . for more than a quarter of a century. Most of our first customers are *still* General Industries boosters, too, we're delighted to say. They've found from experience that the kind of production they get from GI meets *every* specification to a "T".

For the good old-fashioned neighborly service that adds up to accurately molded, smart looking plastics at low cost and *when* you want them, call for the General Industries representative. He'll be on your doorstep quick as a wink.



changes in design



Versatility is today accepted as a leading style trend in women's clothes. A bit of ribbon, a bow, a blouse, alters a basic wardrobe. Have you considered how changes in container design, to enhance your product, can be accomplished with little extra cost? Many manufacturers have improved the sale of their product by switching to set-up boxes. No other container offers such versatility, for with these containers a gradual change in design can be accomplished with minimum cost and without losing customer identity. Today is the right time to consider improving your product packaging. Set-up boxes mean greater sales and added versatility.



NATIONAL PAPER BOX MANUFACTURERS Association

AND COOPERATING SUPPLIERS

Liberty Trust Building • Philadelphia 7, Penn.

FOR INFORMATION OR SERVICE • CONSULT YOUR NEAREST SET-UP BOX MANUFACTURER



Scrub Happy!

● Somebody changed his mind a few times, or maybe the tracer was having a bad day. Just why isn't important. The point is the tracing had to be done over, because erasing had given it a distinctly "scrub happy" look. Arkwright would have saved all this. Erasures mean little to Arkwright. It takes erasure

after erasure without wearing through, without line feathering when you re-ink.

Why not check Arkwright's advantages yourself, in your own drawing room, at our expense. Send for generous working samples, free. Arkwright Finishing Company, Providence, R. I.

All Arkwright Tracing Cloths have these 6 important advantages

- 1 Erasures re-ink without "feathering".
- 2 Prints are always sharp and clean.
- 3 Tracings never discolor or become brittle.
- 4 No surface oils, soaps or waxes to dry out.
- 5 No pinholes or thick threads.
- 6 Mechanical processing creates permanent transparency.

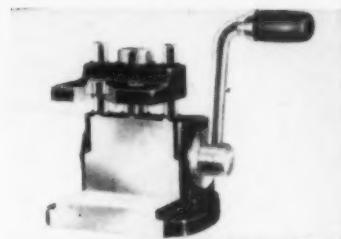


Arkwright

TRACING CLOTHS

AMERICA'S STANDARD FOR OVER 25 YEARS

ANCHORS DRILL JIG BUSHINGS



DRILL jig bushings can be anchored quickly and accurately through use of Moldaloy, an alloy of bismuth, lead, tin and antimony, which has a melting temperature of 430° F. This high melting temperature is said to permit the use of drill jigs at speeds generating an appreciable amount of heat without softening the alloy and letting the bushings shift. Maker states the shrinkage of Moldaloy after solidifying is .001" per inch and bushings remain accurately located after the alloy has solidified. Process makes for a saving in time and production cost in the locating of many other parts in mechanical products. Trethaway Associates, 37 Wall St., New York, N. Y.

CHECK VALVE ELIMINATES LEAKAGE

CHECK valve which combines a double seal to eliminate leakage and loss of pressure even with grit in the system has been announced. With grit .010" in diameter the valve shows no leakage or seepage at any pressure up to 10,000 psi. It is available in sizes ranging from 1/8" to 1" SPT, for pressures to 10,000 psi, and any media not destructive to natural or synthetic rubber. Mansfield & Green, Cleveland, Ohio.

POWER-OPERATED WORK POSITIONER



MODEL 1-P power-operated bench model positioner for work weighing 100 lbs. or less is a versatile machine that facilitates welding, assembling, repairing, grinding, hard surfacing, and similar operations. With this unit work may be tilted to 135 degrees and locked in any position at any degree. It may also be revolved 360 degrees by 1/2 hp single phase reversible motor. Disengaging clutch permits free-wheeling. Ransome Machinery Co., Dept. P-80, Dunellen, N. J.

(Please turn to page 178)

DoALL

REG. U. S. PAT. OFF.

Faster Machining

Precision and high-speed
sawing of all materials,
metals, woods, plastics. Saw
sizes and accessories to suit
all requirements.



CONTOUR SAWING
MACHINE

ONE SOURCE SAVES YOU TIME AND EFFORT DoALL Products Include:

- **CONTOUR SAWS:** 13 models; all prices. Low and high speeds, step or variable. Precision or high-speed cutting.
- **BAND SAW BLADES:** Razor-sharp, superhard teeth. No resharpening needed.
- **BAND FILING MACHINES:** 9 times faster than hand filing, 4 times faster than jig filing.
- **JIG FILING MACHINES:** For more intricate work. Perfectly straight filing.
- **FILES:** All kinds — file bands, jig files, rotary files, hand files.
- **SURFACE GRINDERS:** 6 models. Hydraulic, precision type for toolrooms and production. Also grinding wheels, magnetic chucks, cutting oils, coolant systems, dust collectors, etc.
- **SPOT WELDERS:** New "True-Pressure" type having straight up-and-down movement. No tip skidding.
- **HEAT-TREATING UNITS:** Compact, combination unit includes furnace, oven, quench tanks, automatic controls.
- **ELECTRONIC INSPECTION:** Automatic inspection, sorting and counting of small parts, twice as fast as manual methods.
- **BENCH PROFILERS:** For great variety of small work — profiling, milling, slotting, routing, etc.
- **PRECISION LATHES AND HAND SCREW MACHINES:** Various types for toolroom and production lines.
- **RADIUS SHAPER-MILLER:** 1 setup for many operations — has a thousand production uses.
- **VARIABLE SPEED DRIVES:** Smooth speed-changing drives. Infinitely variable.
- **GAGE BLOCKS AND INSPECTION INSTRUMENTS:** The finest for precision work.
- **TOOL-AND-DIE STEEL:** Non-warping, precision-ground up to 1 inch thick and 6 inches wide.

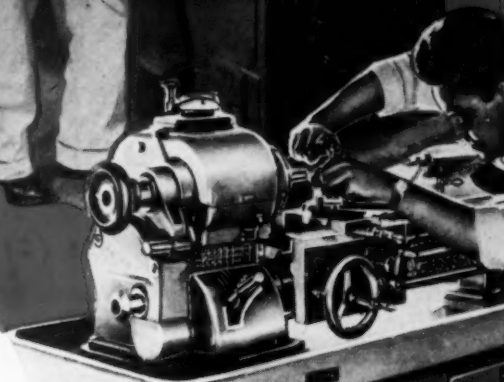
The **DoALL** Company
Reg. U. S. Pat. Off.

REPRESENTATIVES
IN 56 COUNTRIES

Des Plaines, Illinois

DoALL SALES AND SERVICE STORES IN KEY CITIES

Cable Address:
DoALL, Des Plaines



TOOLMAKERS'
LATHE



PRECISION
SURFACE GRINDER

Send for free pictorial booklet "DoALL EQUALS TEN PLUS" which compares fast, efficient Contour Machining with other metal-cutting processes. Shows how this miracle method of low-cost production makes great economies.

HOW TO TAKE CARE OF YOUR *Reputation*

Your name and trademark make a better impression via Premier Nameplates! Quality through and through, Premier Products give your product eye-catching remembrance value . . . make it stand out from competition at the point of sale.

WRITE FOR BULLETIN



PREMIER METAL ETCHING COMPANY

21-09 44th Avenue, Long Island City 1, N. Y.

Quality Products
for Over 35 Years

PROPER LEVEL FOR PEAK PRODUCTION

Kewaunee Automatic Adjustable Chairs and Stools give your workers fatigue-reducing comfort, and insure correct body alignment. Instantly adjustable to proper working height—no fussing with screws, bolts or tools. Simply lift seat to right height. Kewaunee Chairs and Stools fit any man or woman, tall or short, light or heavy, and are "Ton-Tested" for strength. Adjustable foot rest if desired.



Kewaunee

AUTOMATIC ADJUSTABLE CHAIRS and STOOLS

4 HEIGHT RANGES—12-15", 15-21", 18-27", 24-36"

Why not keep your personnel at the proper level for peak production? We'll send you a Kewaunee Chair or Stool on a 30-day trial at no cost or obligation. Write for circular and full details.

C. G. Campbell, President

KEWAUNEE MFG. CO., 5006 S. Center St., Adrian, Michigan

STEEL LINK CONVEYOR



STAINLESS steel belt links for use on the Steel-Parts all-steel belt conveyor are featured by ready removal of plates for cleaning where sanitary conditions are a major factor. The stainless steel links are available in standard conveyor models; the dimensions are optional in accordance with the dimensions of the individual conveyor. Use of steel links is said to provide a perfectly flat, non-sag moving surface for safe and economical material handling. Conveyor is constructed in 5' or 10' sections, which can be added or removed from the unit in one or two hours' time. *Steel-Parts Mfg. Co., 222 S. Morgan St., Chicago, Ill.*

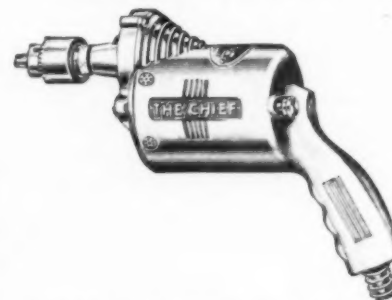
DEBURRING & FINISHING BARREL



NEW line of eleven octagonal deburring and finishing barrels have 4-speed drive. Diameters are 30" and lengths 32" to 60", with 9 standard compartment sizes from 12" to 60" in length. Design features include quick-clamp doors and welded steel construction throughout. These barrels are furnished unlined or with full neoprene lining. They are motor driven at 10, 15, 20 or 30 rpm (approx.) Compartment doors have toggle clamp fastening. Bulletin available. *Almco Inc., 231 E. Clark St., Albert Lea, Minn.*

These barrels are furnished unlined or with full neoprene lining. They are motor driven at 10, 15, 20 or 30 rpm (approx.) Compartment doors have toggle clamp fastening. Bulletin available. *Almco Inc., 231 E. Clark St., Albert Lea, Minn.*

PORTABLE ELECTRIC DRILL



PORTABLE electric drill, known as "The Chief", Model 63, weighs 3-3/4 lbs and is suited for general duty use on a wide range of production, maintenance and repair jobs. It drills up to 3/4" in steel and up to 1/2" in wood; is equipped with three-jaw Jacobs Chuck with key, easy-reach finger point switch, 12 feet of rubber cable. It operates on 110 volt ac-dc and has a free speed of 2000 rpm. *Chicago Machine Co., 920 S. Michigan Ave., Chicago, 5, Ill.*

(Please turn to page 180)

*Now!***YOURS FOR
BETTER PERFORMANCE!***Centrifugally
Cast***BUSHING STOCK****By Shenango-Penn****ASK FOR
FREE BULLETIN
No. 145**

It contains additional data, including complete list of stock sizes, diameters and weights of Shenango-Penn machined centrifugally cast tubular bars and chill-cast solid bars . . . all available for immediate shipment.

**SHENANGO
- PENN****SHENANGO-PENN MOLD COMPANY**

2468 West Third Street • Dover, Ohio
EXECUTIVE OFFICES • PITTSBURGH, PA.

**ALL BRONZES • MONEL
METAL • ALLOY IRONS**

IF you use bushing stock, why not get, at prevailing prices, the best that money can buy?

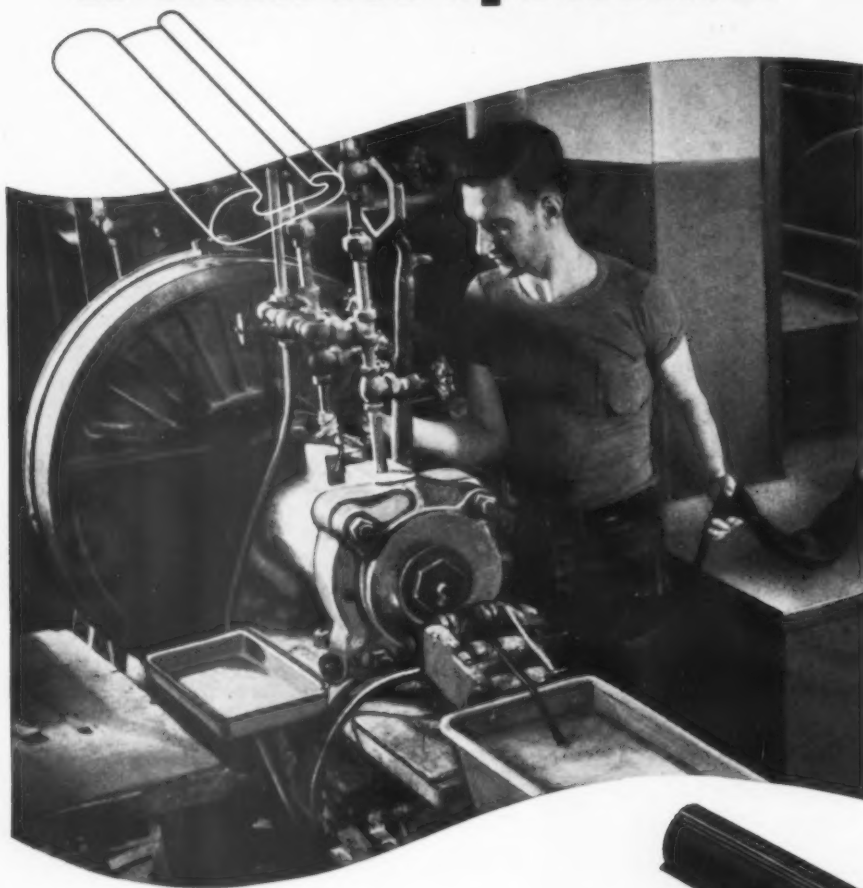
The same centrifugal casting techniques that make Shenango-Penn a preferred source of supply for long-lived, made-to-order bearings, bushings, sleeves, liners, rolls, etc., are now offered in Shenango-Penn tubular bushing stock!

Thus you gain many advantages: finer, pressure-dense grain, an 8 to 20% increase in tensile, finely divided and uniform lead dispersion, superior wear resistance, as much as 30% greater elongation, and *positive* relief from sand inclusions or blow holes. Here's bushing stock that's ready now to give you a big extra margin of safety, service-life and over-all economy.

Send for free descriptive bulletin No. 145 and the address of the Shenango-Penn sales office nearest you.

EXTRUDING RUBBER

is work for Specialists



Continental's specialization is based not only upon its 44 years experience, but also upon the development of specialized equipment. Rubber extrusions are becoming increasingly important as industries design their products for present and future markets. Whenever you have extruded parts to plan and purchase, why not have Continental's recommendation?

See Our Catalog in Sweet's



Rubber by

CONTINENTAL

Baltimore, Md.
Boston, Mass.
Buffalo, N. Y.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas

BRANCHES

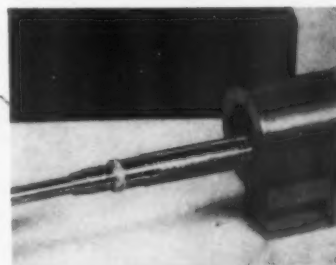
Dayton, Ohio
Detroit, Mich.
Greensboro, N. C.
Hartford, Conn.
Indianapolis, Ind.

Kansas City, Mo.
Los Angeles, Cal.
Lutz, Fla.
Memphis, Tenn.
Milwaukee, Wis.

New York, N. Y.
Philadelphia, Pa.
Pittsburgh, Pa.
Rochester, N. Y.
St. Louis, Mo.
San Francisco, Cal.
Syracuse, N. Y.

CONTINENTAL RUBBER WORKS • ERIE, PENNA., U.S.A.

SURFACE ROUGHNESS IN DEEP BORES MEASURED BY NEW TRACER



TRACER to be used with the Profilometer for taking microinch surface roughness measurements in deep bores such as hydraulic cylinders, camshafts and tubing will measure to any desired depth in holes as small as $\frac{3}{4}$ " I.D., and can be used with any type of Profilometer. It is styled type L.A. The diamond tracing point is self-adjusting to the work surface. Bulletin available. *Physicists Research Co., 321 South Main St., Ann Arbor, Mich.*

AUTOMATIC TABLET BOTTLING MACHINE

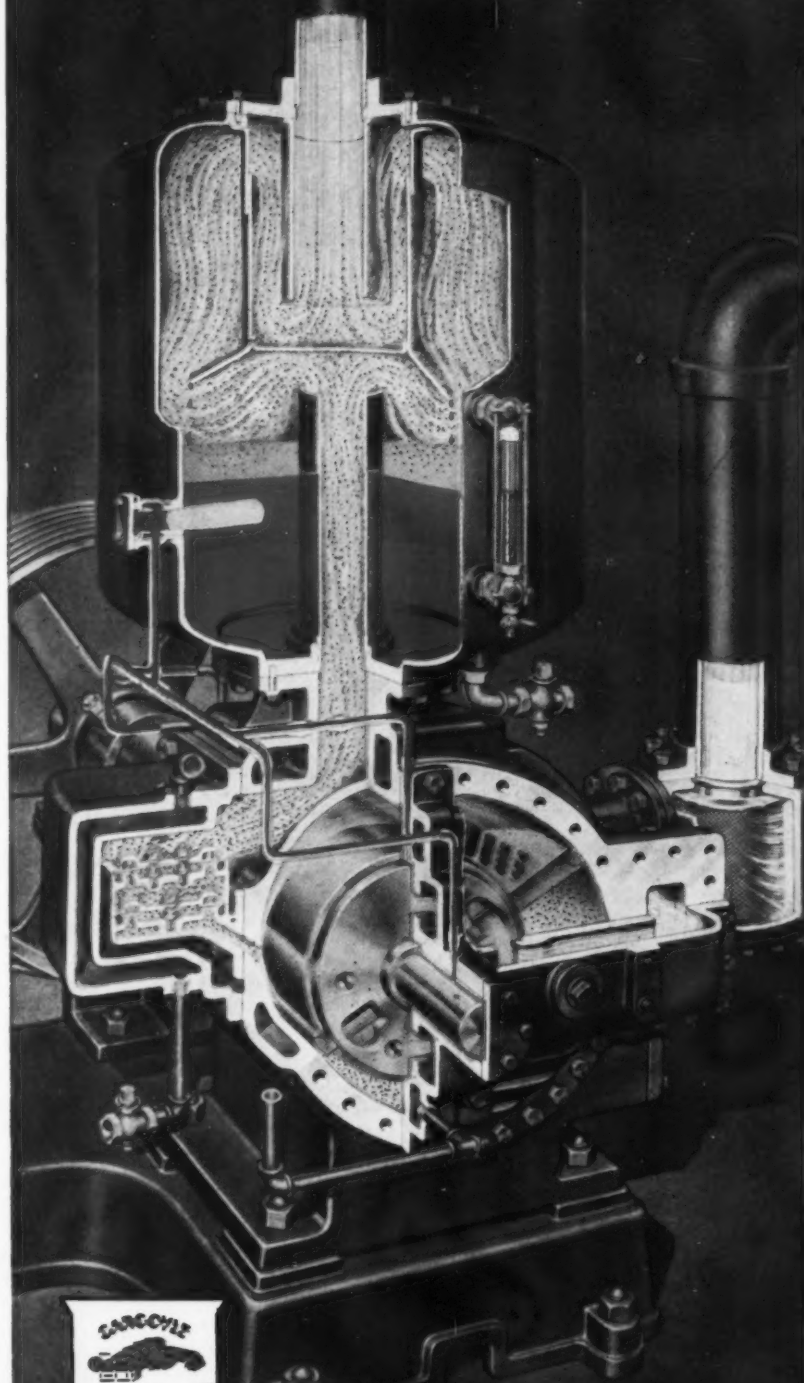
MODEL TM automatic tablet bottling machine is designed to handle bottles from 1" to $2\frac{1}{4}$ " in diameter, up to 5" in height. Tablet counts can be set in quantities ranging from 12 to 300. Maker states production rates of 120 filled bottles per minute are possible. Machine is designed to facilitate changes of either bottle size or tablet count. *U. S. Automatic Box Machinery Co., Inc., Roslindale, Mass.*

ALLOY SPRAY GUN



FORRESTER Alloy Sprayer can be used for spraying almost any kind of low temperature metal. It can be used for producing plastic molds, jigs, fixtures, metal veneer coating for wood, plaster, leather, etc.; for reproducing models, molds, dies and masking for templates, and to form protective coatings on wood patterns, fixture metals, foundry molds, etc. Sprayer is available in three sizes, with 6, 12, and 24 cubic inch pot capacities respectively. Air requirements are $3\frac{1}{2}$ cubic feet per minute at 30 to 40 lbs pressure. Temperature control is adjustable from 100 to 600 degrees F., and maintained within $1/10$ of a degree. *K. & F. Metal Spray Industries, 11204 Charlevoix Ave., Detroit, 14, Mich.*

How to Make Nothing—Fast!

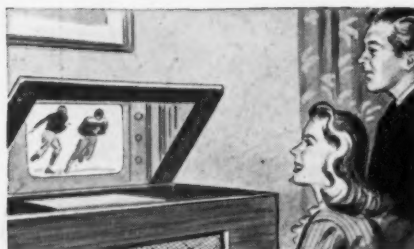


The inside track
to profits...

SOCONY-VACUUM

CORRECT LUBRICATION

Better Tubes for Television Made Possible by a New Oil



A Socony-Vacuum "INSIDE STORY"

HERE'S ONE WAY to make nothing... and make it fast. This machine is a high vacuum pump. It takes the air out of television tubes and light bulbs.

See that whirling rotor? As it turns, those sliding vanes suck in air through the pipe at the right from the tubes that are being evacuated. This sucking creates the required higher vacuum.

Strange Conditions for Oil

Ingenious—yes! And the present high efficiency of this pump is made possible by a combination of the unique pump design and the use of a new special oil by Socony-Vacuum . . . an oil that resists physical change under the strange working conditions inside a vacuum. The result...now operators can obtain desired vacuums much faster . . . can turn out more and better vacuum tubes.

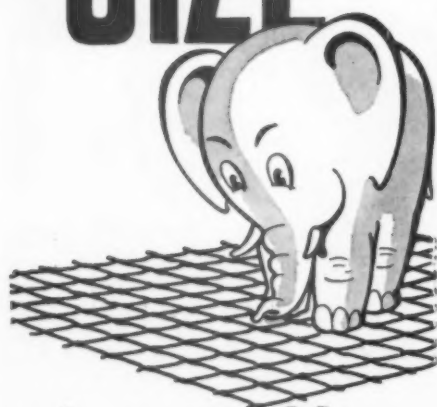
Solving unique problems like this is only one phase of Socony-Vacuum Correct Lubrication. Less spectacular, but equally important, is our complete program for every machine you operate.

SOCONY-VACUUM OIL CO., INC.
and Affiliates: Magnolia Petroleum Company
General Petroleum Corporation

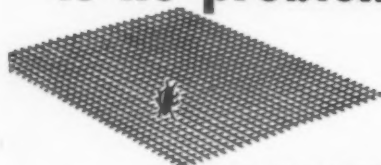
TUNE IN THE MOBILGAS PROGRAM
MONDAY EVENINGS, 9:30 E.D.T.—NBC

*This illustration prepared with cooperation
of Beach-Russ Company*

MESH SIZE



is no problem



for **JELLIFF**

For quality wire mesh — contact Jelliff — makers of wire mesh products for over sixty years. Commercial sizes available in standard lengths of 100 feet and widths of 24 to 72 inches. Meshes of specified gauge and weave made and cut to order. Available crimped, calendered and rolled. Jelliff engineers keep abreast of current developments in new alloys, coatings and processes and apply them when studying your requirements. For best results and maximum economies, look to Jelliff.

Write DEPT. 208 For Literature



HAND-GUIDED TRACTOR UNIT FOR "IN-BETWEEN" LOADS

In that middle range between hand-drawn equipment and heavy-duty powered trucks, another need in modern materials handling has been met with an intra-plant towing unit in which electric storage battery power does the hauling but the operator guides, maneuvers and walks the load — as illustrated. Introduced by The Yale & Towne Mfg. Co., Philadelphia Division, the new device is called the Worksaver Tractor, because its power plant, control and handling are of the same type and design as characterize the Worksaver lift trucks (both pallet and skid models) and Worksaver High-Lift units.

Handles heavy trailers

The unit has ample power for hauling heavy trailer loads. Its three wheels are all 10" in diameter with 5-inch rubber tires for full traction and smooth pulling over rugged plant floors and yards. With only 30" between rear and forward axles, extremely short turning radii are a feature.



Hauling load with new Yale & Towne hand-guided tractor

Principal use of the new unit is expected to be for inside-plant transportation of loads which are, at once, too heavy for manual pushing and too ungainly in shape to be handled on platform-type or fork-type apparatus. Bar stock is a typical load, and is handled on dollies or carts, generally home-made and drawn by chains attached to the coupling.

Maintenance, of course, is considerably less than for full-scale electric trucks on which the operators ride, yet power is ample for negotiating ramps and distance handling.

1 1 1

STREET SECTION PAVED WITH RUBBER BLOCKS

Much is heard about streets in various parts of the world that are paved with rubies, garnets and other precious stones. In the world's "Rubber Capital" at Akron, Ohio, however, there's a section of street paved with rubber.

Composed of rubber blocks similar in shape to conventional bricks, this area of rubber highway was installed 24 years ago by Goodyear Tire & Rubber Company technical men in their never-ending quest of new uses for rubber products.

The rubber pavement is located on one of the most heavily traveled thoroughfares in Akron. It's on East Market

(Please turn to page 184)

ARE YOU BUYING ROPE

TO BE
USED IN

MINES?



THEY NEED THE BEST!

For surface and underground operations, for mills and smelters, there is the outstandingly superior rot-proof, water-proofed, durable rope — Whitlock Waterflex Manila! This rope, manufactured from high-grade Manila fibre, is treated by our well-known Waterflex Process, a combination of waterproofing and lubrication at its best. When ordering from supplier specify Whitlock Waterflex Cordage.



**WHITLOCK CORDAGE
COMPANY**

46 SOUTH ST., NEW YORK 5, N.Y.

An Instrument of Tomorrow

BETTER INSIDE ... BETTER OUTSIDE ... BETTER ON THE FACE OF IT



... Here Today



U.S. INSTRUMENTS Tell The Truth

UNITED STATES GAUGE

THE NEW USG SUPergAUGE—is an instrument of test gauge accuracy, a gauge specially designed for long years of service in industrial installations where excessive vibration, pulsation and high temperature are present. It provides the safe, accurate, economic check on process control that engineers demand. Modernly styled, it has clean trim lines and an easy-to-read broad face dial with bold sharp figures and graduations. Furnished in 4½", 6", and 8½" dial sizes. Buy reasonably priced Supergauge today.

DIVISION OF AMERICAN MACHINE AND METALS, INC. SELLERSVILLE, PA.
Manufacturers of Pressure, Temperature, Flow and Electrical Measuring Instruments



Enjoy "next door" convenience with all your suppliers



It doesn't matter where the supplies and replacement parts you need are located. They can be delivered to you in hours when you specify Air Express. Air Express gives you same-day delivery between many towns and cities. Even overnight coast-to-coast shipments are now routine.

Air Express is a better value than ever at today's low rates. Planes are bigger and faster and schedules more frequent. So, serve your customers better, and keep profits high, too! Use the speed of Air Express regularly.

Specify Air Express—it's Good Business

- Low rates include special pick-up and delivery in principal U.S. towns and cities. • Moves on all flights of all Scheduled Airlines.
- Air-rail between 22,000 off-airline offices.
- Direct air service to and from scores of foreign countries.

Just phone your local Air Express Division, Railway Express Agency, for fast shipping action. . . . Write today for Schedule of Domestic and International Rates. Address Air Express, 230 Park Avenue, New York 17. Or ask for it at any Airline or Railway Express Office. Air Express Division, Railway Express Agency, representing the Airlines of the United States.



AIR EXPRESS

AIR
EXPRESS

GETS THERE FIRST

Rates are low

For example: to Air Express
a 22-lb. shipment 1100 miles
costs only **\$7.43**. 10-lbs. for
\$3.58. Other weights—any dis-
tance — similarly inexpensive.

(Continued from page 182)

Street, directly in front of Goodyear's trucking entrance to its main plant, where hundreds of heavy trucks bearing tires and other materials from which tires are made, pass over the rubber blocks each week.

Today these blocks or bricks are still absorbing the heaviest type of traffic shock imaginable. Several of the bricks were recently removed for inspection by members of the company's development department. Measurements disclosed that surface of the bricks had been worn down approximately five-eighths of one inch, a comparatively slight amount of wear. Apparently these rubber bricks are good for more years of constant pounding.



Inspection showed the rubber paving blocks to be but slightly worn.

Molded and compounded for abrasion and aging, the bricks in this unusual pavement have tongue and groove construction on their sides to provide security when fitted together in laying. Each brick is eight inches long, four inches wide and four inches high.

The bricks were laid on an eight-inch concrete base with a quarter-inch cushion of high-molting asphalt between the rubber and concrete, while one end and side of each brick was painted with asphalt emulsion.

1 1 1

LOW-SPEED SYNCHRONOUS MOTOR DESIGN IMPROVED

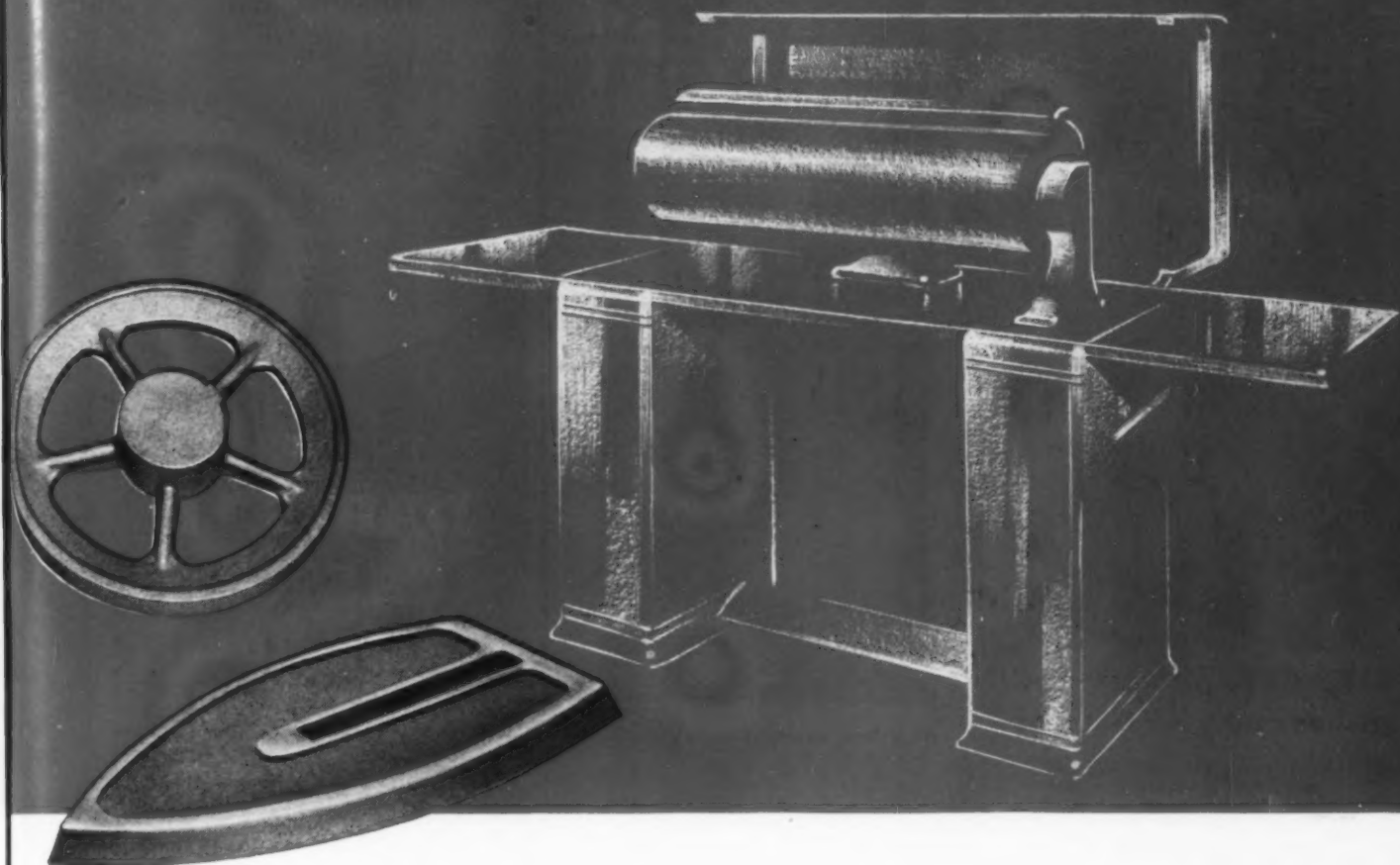
To meet the needs of industries, such as the pulp and paper industries, requiring splashproof synchronous motors, the General Electric Company has redesigned its line of low-speed synchronous motors to include splashproof construction.

Simple design of end-shield covers makes it easy to remove and assemble them when inspecting the motor. The pedestal bearings are outside the housing, permitting regular inspection of oil supply and oil ring operation.

The new frame construction saves floor space as it has louvered openings for the side air discharge instead of the flared-skirt type of opening. The conduit box is included in the frame structure of the motor to protect it from splashing liquids. An inspection window is provided in the air chute for viewing the brush holder and collector without removal of the covers.

(Please turn to page 186)

EATON PERMANENT MOLD GRAY IRON CASTINGS



Contribute Quality to Modern Appliances—

Millions of Eaton Permanent Mold Gray Iron Castings are used annually in the domestic appliances industry for such critical parts as refrigeration valve plates, pistons, cylinder heads, pump bodies, sheaves, vee-belt pulleys, and many others.

In applications where liquids must be held under pressure, the dense non-porous structure of Eaton Permanent Mold Gray Iron Castings assures freedom from leakage. Ability to take a high surface finish and freedom from growth and distortion after machining recommend them for

cylinder blocks, crankshafts, connecting rods, and gears. Free machinability makes for fast, uninterrupted production and a high percentage of perfect parts.

Eaton Foundry Division engineers will be glad to discuss the application of Eaton Permanent Mold Gray Iron Castings to your product.

Send for your copy of the illustrated booklet, *"A Quick Picture of the Eaton Permanent Mold Process for producing Gray Iron Castings."*



THE EATON PERMANENT MOLD MACHINE IS A SYMBOL
OF THE QUALITY OF GRAY IRON CASTINGS PRODUCED
BY THE PERMANENT MOLD PROCESS.

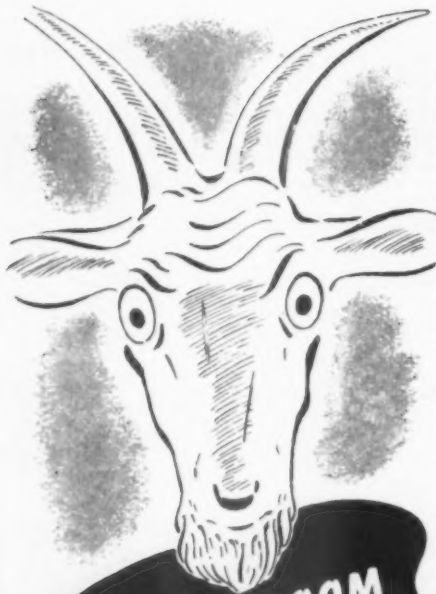
© 1947. EATON MFG. CO.

EATON

MANUFACTURING COMPANY
FOUNDRY DIVISION

9771 French Road

Detroit 13, Michigan



**DO WASHROOM
PROBLEMS GET
YOUR GOAT?**

**STRAUBEL towels and
tissues end your troubles
quickly . . . at lower cost!**



YE'LL CUT WASTE
AND PROVIDE MORE
USER SATISFACTION
WITH THESE
"TOUGH
WHEN WET"
PAPERS...
SO ABSORBENT...
SO GENTLE TO
YOUR SKIN

A TRIPLE SERVICE!
DISTRIBUTED THROUGH
PAPER MERCHANTS ONLY

WRITE FOR
NAME OF
NEAREST
MERCHANT



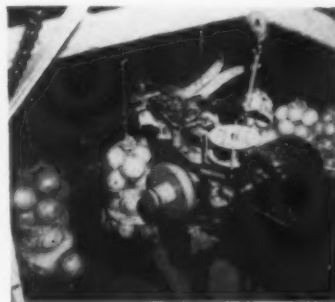
STRAUBEL PAPER CO. • GREEN BAY • WIS.

OPEN-MESH BAG CLOSING MACHINES

Something new in the field of closing open-mesh bags filled with citrus fruit has been installed at the Fosgate Growers Cooperative in Orlando, Florida.

The new machine is an automatic stapler, developed by Bostitch, Inc., with the cooperation of Bemis Bro. Bag Co., and is destined to eliminate the hand-tying process which formerly consumed about as many labor-hours as the bag-filling process.

The operators filling the open-mesh bags merely hang the bags of citrus by their drawstrings on hooks attached to a conveyor. Then, suspended by their drawstrings, the filled bags pass by the stapling machine which automatically fastens the drawstrings securely. After



Filled Bags entering stapling machine

being closed, the bags drop to a conveyor belt which carries them directly into the railroad car or other transportation facility.

In addition to the time saved by eliminating the hand tying process, this method eliminates other labor-consuming procedures such as stacking, hand-trucking, and storing.

1 1 1

RESISTANCE WELDING NOTES

Q. Does resistance welding have any points of similarity with other welding processes?

A. Yes. Both resistance welding and arc welding use electricity as a source of heat, but resistance welding has the advantage of applying pressure on the weld and eliminating the addition of metal at the joint. Two other processes, forge welding and pressure thermit welding, have the advantage of the use of pressure. However, they do not have the convenience of heating electrically by resistance in the joint nor the advantage of electrical control of time and heat which resistance welding brings.

Q. Can resistance welders be used for brazing?

A. Yes. The use of resistance welders for this purpose is increasing because the procedure is similar to welding and high speed production can be obtained. —From the Taylor-Winfield Corporation's "Weld-it".

(Please turn to page 190)



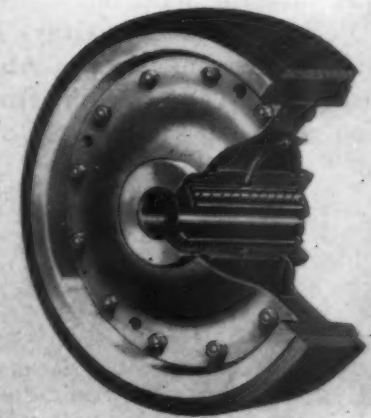
**THERE'S A
DARNELL
CASTER
& E-Z ROLL
WHEEL
FOR EVERY
INDUSTRIAL
USE . . .**

DARNELL CORP. LTD.

LONG BEACH 4, CALIFORNIA

60 WALKER ST., NEW YORK 13, N. Y.

36 N. CLINTON, CHICAGO 6, ILL.



Here is the range of
versatility



in

SuVeneer *Trademark Reg. U.S. Pat. Off. CLAD METAL

The *face values* of any of three metals—copper, monel or nickel—are yours *plus* the physical characteristics of steel . . . when you specify SuVeneer* Clad Metal!

In a single composite strip, you get the solid, dense metal you choose on *one side or both sides* of the steel base . . . in controlled thickness, inseparably bonded, retaining its relative proportions in all gauges.

SuVeneer Clad Metal can be drawn, formed or stamped by your customary processes. It is a material well worth the immediate attention of modern metal fabricators in every field. Your detailed inquiries are welcome!

Specialists

in the production of fine strip steels since 1892

SuVeneer Clad Metal

Stainless in all grades

Alloys and Spring Steels

Superior Steel

CORPORATION

CARNEGIE, PENNSYLVANIA

Check Your Preference

✓	BETTER FIT
✓	SMARTER APPEARANCE
✓	ADDED COMFORT
✓	ASSURED PROTECTION

NEW



FUL-VUE ACETATE GOGGLES

Provide All Four



These new AO spectacle goggles, in addition to their *essential* function of eye-protection, offer more exact fit, smart styling and a maximum degree of comfort. A noteworthy advance is the keyhole bridge, strong and sturdy but light in weight and face-formed for comfort and protection. Goggle weight is distributed evenly by nose pads — further advancing wearing ease. AO FUL-VUE features mean greater safety and working efficiency via lenses that conform to and cover eye orbit plus high set end pieces that remove hinges and temples from line of sight. Five bridge sizes, two eye sizes. 6 Curve Super Armorplate Clear or Calobar lenses. Your nearest AO Safety Representative can supply you.

Safety
Division

American  Optical
COMPANY

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

From Lumber to Luxury Furniture



SIMONDS

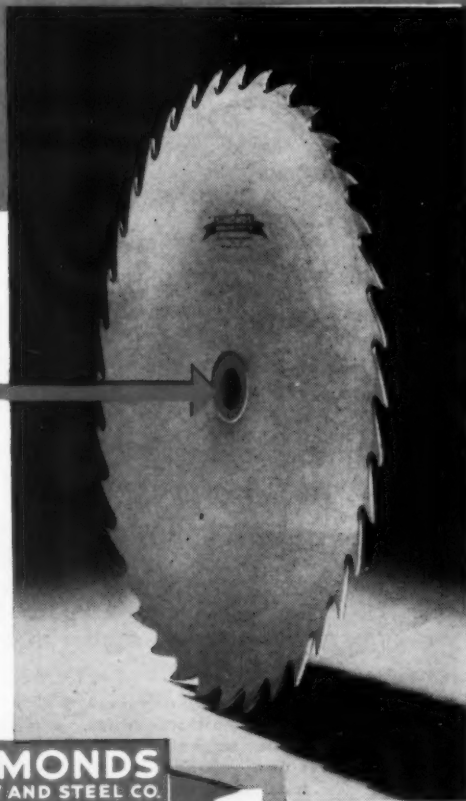
"RED CENTER"

Is the Stop-Sign to Waste and High Cutting Costs

In every woodworking plant there are scores of sawing jobs on which this Simonds "Red Center" is the stop-sign to waste and high cutting costs.

These saws are made of Simonds electric steel poured in Simonds' own steel mills . . . *the toughest nickel alloy saw steel made*. Each saw is ground flat, perfectly balanced, then tensioned by skilled anvil men under ideal lighting conditions in Simonds Controlled-Conditions Plant.

That's why Simonds "Red Center" Circular Saws cut smoothly, easily, and fast . . . why they cut straight and hold their cutting edges in the hardest woods . . . and why they take fast feeds easier, with lower power consumption. Order from your distributor *now*.



SIMONDS
SAW AND STEEL CO.

FITCHBURG, MASS.

Other Divisions of SIMONDS SAW AND STEEL CO.
making Quality Products for Industry

SIMONDS
STEEL MILLS

SIMONDS SAW AND STEEL CO.
LEICESTER, N.H.
Special Electric
Furnace Steels

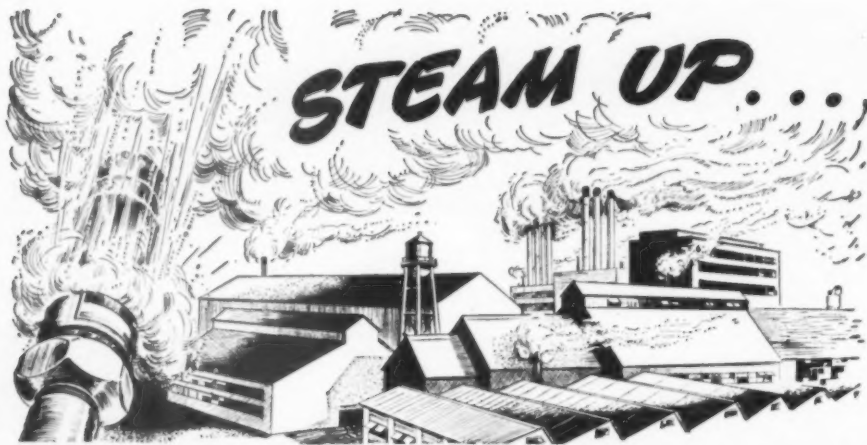
SIMONDS
ABRASIVES CO.

PHILADELPHIA, PA.
Grinding
Wheels
and Grains

SIMONDS
CANADA SAW CO. LTD.

MONTREAL, QUEBEC, CANADA
Sawing Steel
Simonds Products
for Canada

BRANCH OFFICES: 1350
Columbia Road, Boston 27,
Mass.; 127 S. Green St.,
Chicago 7, Ill.; 416 W.
Eighth St., Los Angeles 14,
Calif.; 228 First St., San
Francisco 5, Calif.; 311 S.
W. First Ave., Portland 4,
Ore.; 31 W. Trent Ave.,
Spokane 8, Washington.
Canadian Factory: 595 St.
Remi St., Montreal 30, Que.



for KEENER COMPETITION A NEW PRODUCTION CHALLENGE!

● The principal markets of today and tomorrow will go to the best-equipped, most efficient producers. Will your plant be among these leaders?

Modern equipment, the key to this new, highly competitive era, includes more than efficient machinery... it takes in every corner of your plant.

Consider valves, for example. Good valves are necessary for operating efficiency. LUNKENHEIMER VALVES meet every requirement, for dependable service. Proved through the years... in every industry... under the most exacting conditions, they deliver longer service at lower maintenance cost. Industrial users trust LUNKENHEIMER VALVES—know they combine carefully selected materials, advanced design and superior workmanship, backed by 85 years of valve manufacturing experience.

ESTABLISHED 1842

THE LUNKENHEIMER CO.

—“QUALITY”—

CINCINNATI 14, OHIO, U. S. A.

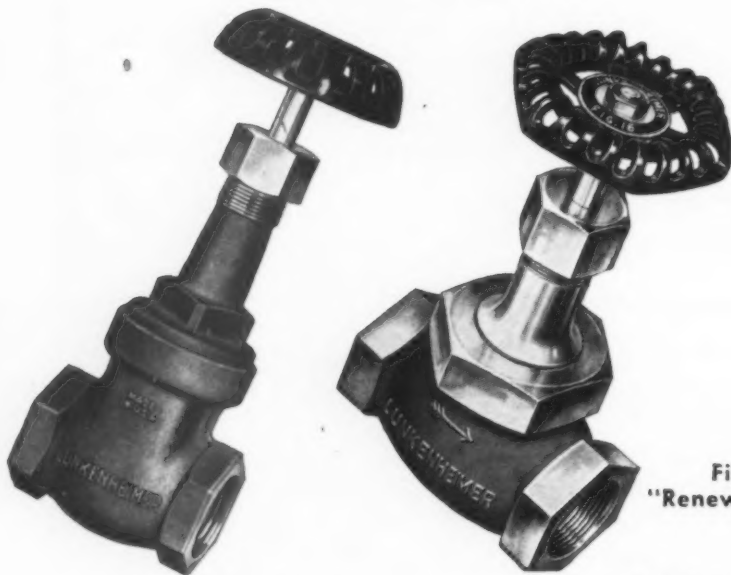


Fig. 2125
Bronze Gate

And, backing up this high quality... insuring utmost satisfaction, is a nation-wide service organization. The next time you have a valve problem... installation, maintenance, repair or operation... call your Lunkenheimer Distributor. You'll find his service, like that of LUNKENHEIMER VALVES, truly dependable—always.



Fig. 16
“Renewo Globe”

LUNKENHEIMER VALVES

BRONZE, IRON, STEEL, AND CORROSION RESISTANT ALLOY VALVES
AIR DEVICES, LUBRICATORS, AIRCRAFT FITTINGS

4 CYCLE 2HP LIGHTWEIGHT ENGINE

Designed for simple, low-cost maintenance and to eliminate the long costly delays usually involved in low horsepower gasoline engine repair work, a new light weight 2 horsepower engine to be produced by the Scott Engine Company, No. La Salle St., Chicago, Ill., will feature a patented easily replaceable head embodying the valve mechanism and combustion chamber. The 4-cycle valve-in-head engine is so constructed that almost all necessary repair work can be performed without necessity for shop equipment.

An integrally cast crank-case housing and cylinder block of aluminum is the



Scott's lightweight 2 hp engine

principal weight saving feature and enables the engine to deliver approximately twice as much power per pound of weight as similar conventional models. The $2\frac{1}{4}$ inch flatheaded aluminum piston has a $2\frac{1}{4}$ inch stroke.

Facilitating quick repair, complete replacement heads will be stocked by dealers for exchange at low cost. Other features contributing to ease of maintenance are replaceable valve guides, a replaceable cast iron cylinder liner, and a greatly simplified arrangement for valve adjustment. To expose the valve mechanism, only two readily accessible nuts need be removed. All accessory parts such as the carburetor, filters, etc. are standard.





1 1 1

ALUMINUM AND STAINLESS STEEL IN EXPANDED METAL

Expanded metals in aluminum alloys or 18-8 stainless steel type 304, are now available, according to an announcement by United States Gypsum Company. These metals will help supply new fields as well as help relieve the temporary shortage of carbon steel.

The stainless product is made from 18, 16, 13, and 10 gauge steel, available in $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ inch openings. The

(Please turn to page 192)

Whether you want to dehydrate  cod fish,
dry a finish , bake ceramics , cure
hides  ...or what have you ...

...there's a G-E infra-red lamp for your job!



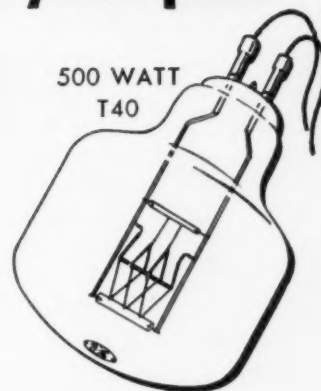
125 WATT
R40



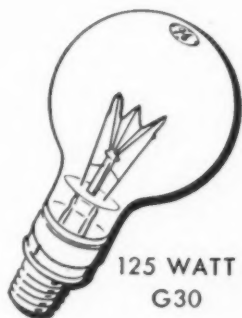
250 WATT
R40



375 WATT
R40



500 WATT
T40



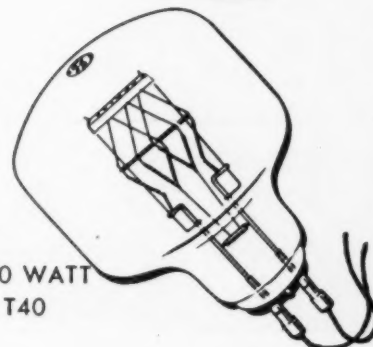
125 WATT
G30



250 WATT
G30



375 WATT
G30



1000 WATT
T40

Quick heat at low cost. That's what you get with General Electric industrial infra-red lamps and that's why they're being used successfully for so many jobs throughout industry. Pre-heating metals, thermo-setting cement, accelerating chemical reactions, drying plywood—to name just a few.

Infra-red is inherently your most flexible source of radiant energy for industrial processes. Efficient ovens can be designed to fit

any production scheme. And now the wider selection of types and sizes available in G-E infra-red lamps makes it even easier to select the *right* oven for *your* job.

Remember, whatever infra-red lamps you need, General Electric makes 'em all! The full line includes sizes from 125 to 1000 watts, in both reflector and clear bulb types. For full information, consult a recognized infra-red oven manufacturer, or call your nearby G-E Lamp office.

G-E LAMPS

GENERAL  ELECTRIC

SEND FOR new bulletin on infra-red. Write to General Electric, Nela Park, Dept. S-6, Cleveland 12, O.





ON DRAFTING MATERIALS AND ENGINEERING EQUIPMENT

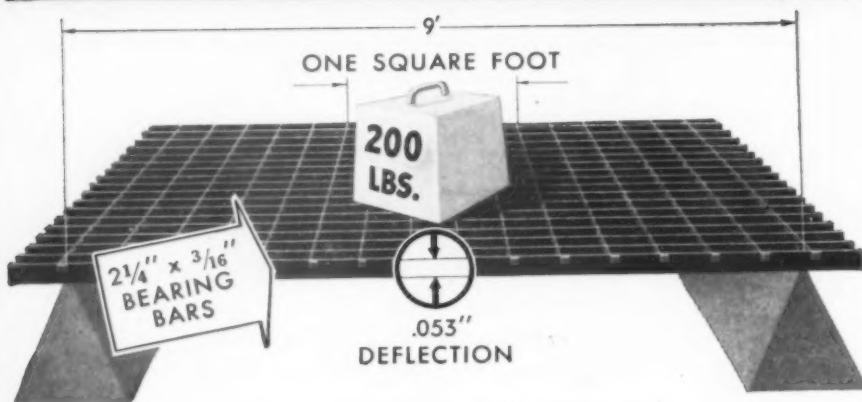
The Post Oval is more than a trademark—it is a guarantee of product satisfaction backed by current research tests—over fifty years of practical knowledge in serving the architect and draftsman—products distributed by a nation-wide network of responsible dealers. Whether you are a large or small buyer of drafting materials we believe you will find it rewarding to examine Post products.

THE Frederick Post Company

3650 NORTH AVONDALE AVE., CHICAGO 18, ILL.

DETROIT • HOUSTON • CHICAGO • LOS ANGELES • MILWAUKEE

This is **TRI-LOK** OPEN STEEL FLOORING



The locked in strength of TRI-LOK enables it to stand up under heavy loads—even on long spans. No rivets, bolts or welds are used in its construction, thus, the possibility of loose joints is eliminated. Write for Bulletin 1140.

DRAVO CORPORATION NATIONAL DEPARTMENT

300 Penn Avenue, Pittsburgh 22, Pa.

(Distributor for THE TRI-LOK COMPANY)



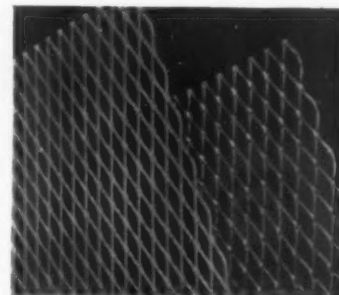
(Continued from page 190)

aluminum item comes in .051, .081 and .125 inch thicknesses and is also available in $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ inch openings. Both are available in flattened expanded metal.

The new products open possibilities in expanded metals exposed to moisture or corrosion, or where extra light weight is a factor. There are literally hundreds of uses for these alloys, some of which are:

Baskets, drying trays, conveyors, fan grills, refrigerator shelves, toasters, broilers, food bins, and washing equipment for the food processing industries...

Smoking trays, cooler shelves, curing shelves, pickling baskets, dripping racks for meat packing...



Shown here is expanded metal (bottom) and Shelf-X (top) in 18-8 stainless steel type 304. Available in $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ " openings made from 18, 16, 13 and 10 gauge steel. The advantages include light weight, large percentage of open area, stiffness, and attractive appearance.

Screens, bottling equipment, cooling equipment for the brewing industry...

Cheese molds, bottle washing equipment, cabinet shelves, guards and vents in dairy machines...

Dish washing machines, kitchen cabinet vents, radiator grills, medicine chest shelves, laundry bins and racks, food storage bins for household equipment...

Then there are drying drums, grills, vat covers in the chemical industry, as well as many accessories and appliances in the electrical, surgical and textile industries. In fact, there seems to be practically no end to the use for expanded metals in modern design.

1 1 1

NEW STEEL STRAPPING FEATURES STRENGTH AND PLIABILITY

New type of steel strapping that forms easily around all objects, yet is outstanding in tensile strength, is announced by A. J. Gerrard & Co. The new strapping has been developed through cooperative research by A. J. Gerrard strapping specialists and metallurgists of the steel industry. The strap conforms to all industrial standards as to tensile strength, elongation, etc. It withstands sudden, violent shocks without snapping. Gun-metal blue in color, the new strapping is readily available in all standard sizes. Full details and sample of the new strapping may be obtained directly from A. J. Gerrard & Co., 221 North LaSalle St., Chicago 1, Illinois.

(Please turn to page 194)

***THIS TRADE MARK
IDENTIFIES
THE FINEST
ALKALIES***



SOLVAY
TRADE MARK REG. U. S. PAT. OFF.

Products for the Leather Industry



Ammonium Bicarbonate

Ammonium Chloride

Tanners Alkali

Cleansing Soda XX

Sodium Sesquicarbonate



SOLVAY SALES CORPORATION *Alkalies and Chemical Products Manufactured by The Solvay Process Company* **40 Rector Street, New York 6, N. Y.**



Container Quiz

what?
why?
which?
where?
when?



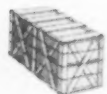
General
All-Bound
Box



General
Nailed Box



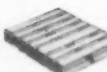
General
Corrugated
Box



General
Wirebound
Crate



General Cleated
Corrugated
Container



General
Lift Pallet

25 years' experience in
designing better con-
tainers for all industry.

• The answers to these 5 questions are of vital interest to all those concerned with the better packing of their products.

"**WHAT** container will provide better protection, will best ship our products?" We think that General Boxes will provide better and more economical protection for your products.

"**WHY**?" Because they're designed specifically to the product, as a "Part of the Product."

"**WHICH** type of container will do the most efficient job?" The answer to this important question is provided by our Engineering Service.

"**WHERE** is this service available?" For complete information just write our nearest office.

"**WHEN**?" ... is best answered by your doing this right now.

ENGINEERED SHIPPING CONTAINERS

25 YEARS
YOUNG

1922-1947

General BOX COMPANY

GENERAL OFFICES: 48 West Illinois St., Chicago 10, Ill.

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon, Natchez.

Continental Box Company, Inc.: Houston, Dallas.

FORD DEVELOPS NEW METHOD FOR COATING SAND CORES

Improved castings on V-8 cylinder blocks have been achieved by Ford Motor Company mechanical design engineers by means of a new production device for coating the sand cores with a protective material.

Core dipping is an old practice in foundry operations but the new automatic dipping and spinning unit at Ford adds several important features to the old method and deals a heavy blow to one of the toughest problems of block castings.

Until recently each section of the core was dipped separately and dried in the core ovens separately and then assembled into a complete unit. Although a paste was used in assembling the various sections of the core there was always the hazard that the joints might not be a perfect fit, allowing the molten metal to flow into the crevices and form a thin metal 'fin' in the interior of the block resulting in a restricted water passage.

With the new equipment, the assembled core is handled as a complete unit, eliminating the possibility of open spaces between the joined sections and also reducing considerably the likelihood of sand from the cores getting into the molten metal.

This unique process makes use of a conveyor with a spinning fixture for the core which passes through a dipping tank located in a pit below the core handling section. As the core emerges from the tank a gear engages with a worm screw and spins the core, removing excess coating compound.

1 1 1

G-E BUILDS TWO EXPERIMENTAL GAS TURBINES

Two experimental gas turbines, one a 5000-kw machine for electric power stations, and the other a 4800-hp unit are being constructed by the General Electric Company. Shop tests of the 4800-hp turbine are scheduled to begin this spring. The stationary power plant is in the design stage and will not undergo factory test until 1948.

The 4800-hp gas turbine will burn Bunker "C" fuel, although work is being carried on in the use of pulverized coal in order to permit more diversified application of gas turbines. The 4800 hp unit being constructed is approximately 19 ft. long and weighs between 2½ to 4 pounds per horsepower.

Drawings are being made for a 5000-kw plant suitable for central station or industrial application, which it is felt will prove to have very competitive all-around economy and characteristics when compared with other types of plants in similar ratings.

In this stationary gas turbine which also will be powered with oil, air flows through two compressors, an intervening intercooler, a regenerator and then into six combustion chambers. Nominal inlet temperature to the turbine is 1500 F.

(Please turn to page 196)



You'll sense — instantly — a sure "feel" of lightweight power and bulk-free balance the moment you pick up this new FLEX HANDLE! It's just one of the many re-designed members of this famous Line that has consistently brought you — Mechanics Hand Tools that Make Money.

Note the remarkably slim, new OVAL design . . . it's streamlined, yet strength has actually been *increased* . . . clumsy bulk of the old round shape has been scientifically eliminated and steel added in the direction of strain. The new oval grip, too, is beautifully designed to fit the hand more securely.

Stronger, slimmer — amazingly effective in the tough spots — that's the story on the whole New Britain Line today.



Excess material, top and bottom, in old round shape, did little or no work. Removing this surplus greatly reduces useless bulk. Slight reinforcement added to each side in new Oval design—in direction of push and pull—develops amazing new strength.

There's knuckle and job insurance in these really modern Tools of Greater Strength—Better Fit . . . ask your Mill Supply Jobber to show you the Line. The New Britain Machine Co., New Britain, Conn.

The complete New Britain Line for Automotive, Aircraft, General Maintenance and Production Needs is sold by leading Jobbers.

New Britain

GREATER STRENGTH • BETTER FIT **HAND TOOLS**

60 YEARS OF SERVICE to INDUSTRY

SUPPLYING WASHERS and STAMPINGS

OF EVERY DESCRIPTION
FOR EVERY PURPOSE...
UTILIZING MORE THAN
22,000 SETS OF DIES

Let Us Quote On Your Needs!



WROUGHT WASHER MFG. CO.
THE WORLD'S LARGEST PRODUCER OF WASHERS
2113 SOUTH BAY STREET • MILWAUKEE 7, WISCONSIN



For cleaner, more accurate power machine cutting of hardest alloy steels — stainless, chrome, nickel, etc. — the Griffin High Speed Steel Blade is your best buy. 18-4-1 tungsten high speed steel, specially Griffin-tempered, with specially milled teeth. Made also in hand frame sizes.

OTHER GRIFFIN BEST BUYS

For most economical general power machine use, pick the GRIFFIN SPECIAL ALLOY molybdenum high speed steel blade... For most flexibility plus toughness in a hand frame blade pick the improved NEW GRIFFIN... For hand sawing thinnest sheet or tubing without tooth breakage, pick the GRIFFIN NON-STRIP... For precision contour sawing pick GRIFFIN BAND SAWS; choice of hard-edge-flexible-back, spring-temper, skip-tooth and wood cutting types.

Ask your distributor for Griffin Blades. For latest 20-page Griffin Price List write us.

GENERAL SALES AGENT
JOHN H. GRAHAM & CO. INC.
Dept. C, 105 Duane St., New York 8, N. Y.

GRIFFIN
HACK SAW BLADES AND BAND SAWS

MADE BY G. W. GRIFFIN CO., FRANKLIN, N. H.
Hack and Coping Saw Blade Specialists Since 1880

(Continued from page 194)

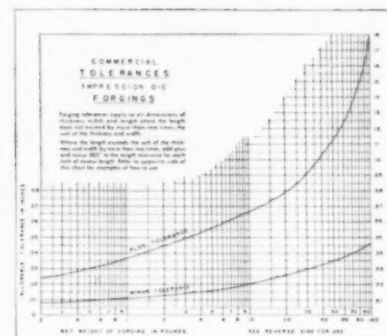
with the gases expanding first through a two-stage turbine which drives the high pressure compressor. Turbine and compressor run at a constant speed of approximately 8700 rpm.

The rest of the expansion occurs through the single-stage low-pressure turbine which drives the low-pressure compressor.

Attention is called to the fact that while the gas turbine seems very promising, it is, nevertheless, still in the development stage.

1 1 1

CHART SHOWS COMMERCIAL TOLERANCES DIE FORGINGS



Determining commercial tolerances for closed impression die forgings has been made simple and quick by a chart developed by forging engineers of long experience. This chart is believed to be the first of its kind. This graphic presentation of all essential factors enable the user to determine almost instantly the commercial tolerances for any style, shape and weight of forging up to 500 lbs., thereby saving much time and effort and speculative calculation involving tedious paper work. The chart reveals tolerances for dimensions of thickness, width and length. It is printed on 8½" x 11" ledger stock, punched for a standard three-ring binder. Typical examples for guidance in using it are printed on the back of the chart. Copies are available from the copyright owner, The Steel Improvement & Forge Co., 960 East 64th Street, Cleveland 14, Ohio.

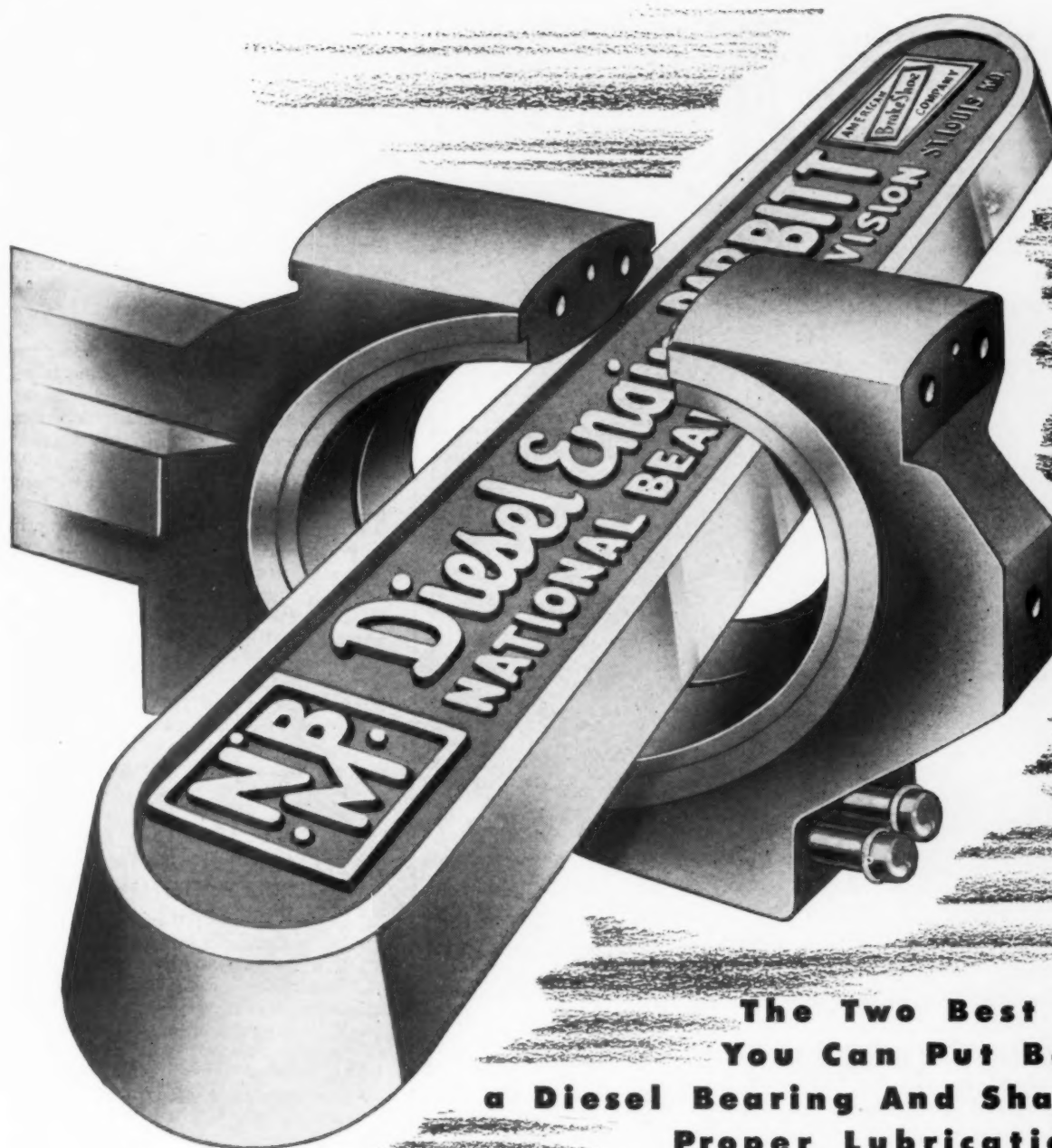
1 1 1

V-BELTS NOW MADE WITH RAYON CORDS

Rayon is now being used as the reinforcement, or tension member of all its light duty and automotive V-belts, it is announced by The B. F. Goodrich Company, Akron Ohio. Tension members are the parallel groupings of cords which carry the load in a V-belt.

The new rayon construction, as compared to the cotton previously used gives longer belt life, particularly at elevated temperatures, which are becoming an increasing factor in this field, as belt speeds and loads are increased. All the

(Please turn to page 198)



**The Two Best Things
You Can Put Between
a Diesel Bearing And Shaft Are:
Proper Lubrication And**

N-B-M DIESEL ENGINE BABBITT

- Bonds easily—resists squeezing out
- Excellent embedability and hardness retention
- Great compressive strength and safety factor are your surest protection against seizure, fatigue and overstress.



Brake Shoe

NATIONAL BEARING DIVISION

ST. LOUIS • NEW YORK

PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N. J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

CORBIN-PHILLIPS CENTERED SPEEDS



DRIVING PRODUCTION!



No "WOBBLE WORRIES" on this job

He's center driving CORBIN-PHILLIPS Screws — with no "Wobble Worries" because the Phillips Recessed Head holds the bit in a grip of steel that prevents wobbling and slipping. No need for follow-up fixing: the operation adds up to flawless, high-speed production and increased profits. Another big advantage with CORBIN-PHILLIPS Screws is dependable uniformity.

CORBIN SCREW DIVISION
The American Hardware Corporation
NEW BRITAIN • CONNECTICUT

CORBIN *PHILLIPS*
Screws

ALSO SCREW MACHINE PRODUCTS

milled from bar on single- and multiple-spindle automatics . . . with secondary operations including centerless, cylindrical, surface, internal and thread grinding; roll thread; heat-treating; plating and polishing . . . and rigid inspection.

SP-72

(Continued from page 196)

V-belts are made with the company's heat resistant rubber compounds.

Accelerated laboratory tests indicate that life of light duty and automotive V belts has been increased at least 50 per cent through the use of rayon cord in tension members, the company says.

Permanent stretch of the new belts is much less than the old, because of the characteristics of the rayon cord itself and the increased adhesion between cords and rubber. This advantage mounts as high temperatures are created by the flexing action of the belts.

While nearly all drives using light duty and automotive V-belts have some take-up available, they are generally hard to adjust. The high elongation of the rayon cords during a change in tension, plus the high rate of recovery and the small changes in permanent length makes them particularly suitable for these drives since they carry their maximum loads much longer than those made with cotton.

The new rayon-reinforced V-belts are preferable for some services to V-belts in which steel is used as the sustaining member. Tension on the steel-reinforced type falls rapidly as cover wear occurs, because of the lack of stretch in steel. High percentage of recovery after stretch of the rayon cords permits maintenance of tension, and they are in addition more resilient and resistant to shock fatigue.

1 1 1

"RE-TREADING" INDUSTRIAL APRONS REDUCES APRON BILLS

Industrial apron "retreading" or repair service is announced by the Columbus Manufacturing Co., Department 9-N, 1836 East Fulton St., Columbus, Ohio. The company repairs wear spots and breaks in Neoprene-latex treated aprons, by patching the worn spot and re-treating the entire fabric with a Neoprene solution such as is used in the making of new aprons. The process is being applied to white and colored aprons as well as to the standard black types. The service is described in circular called "Retread Old Aprons."

1 1 1

FIBERGLAS ACOUSTICAL BOARD FOR CEILING CONSTRUCTION

An acoustical board for use with recessed-type fluorescent light troffers to form a low-cost suspended ceiling with high sound absorbing qualities has been developed by the Owens-Corning Fiberglas Corp., Toledo, Ohio.

The new fiberglas board is laid between continuous troffer rows and is designed for use in both new construction and in remodeling present interiors. Composed of specially processed glass fibers treated with a thermosetting resin, the board is available in sizes 25½" by 48" and 24" by 48". Thickness is one inch.

To provide an attractive appearance and high light reflection, the board is

(Please turn to page 202)

Matched for weight and matched for strength



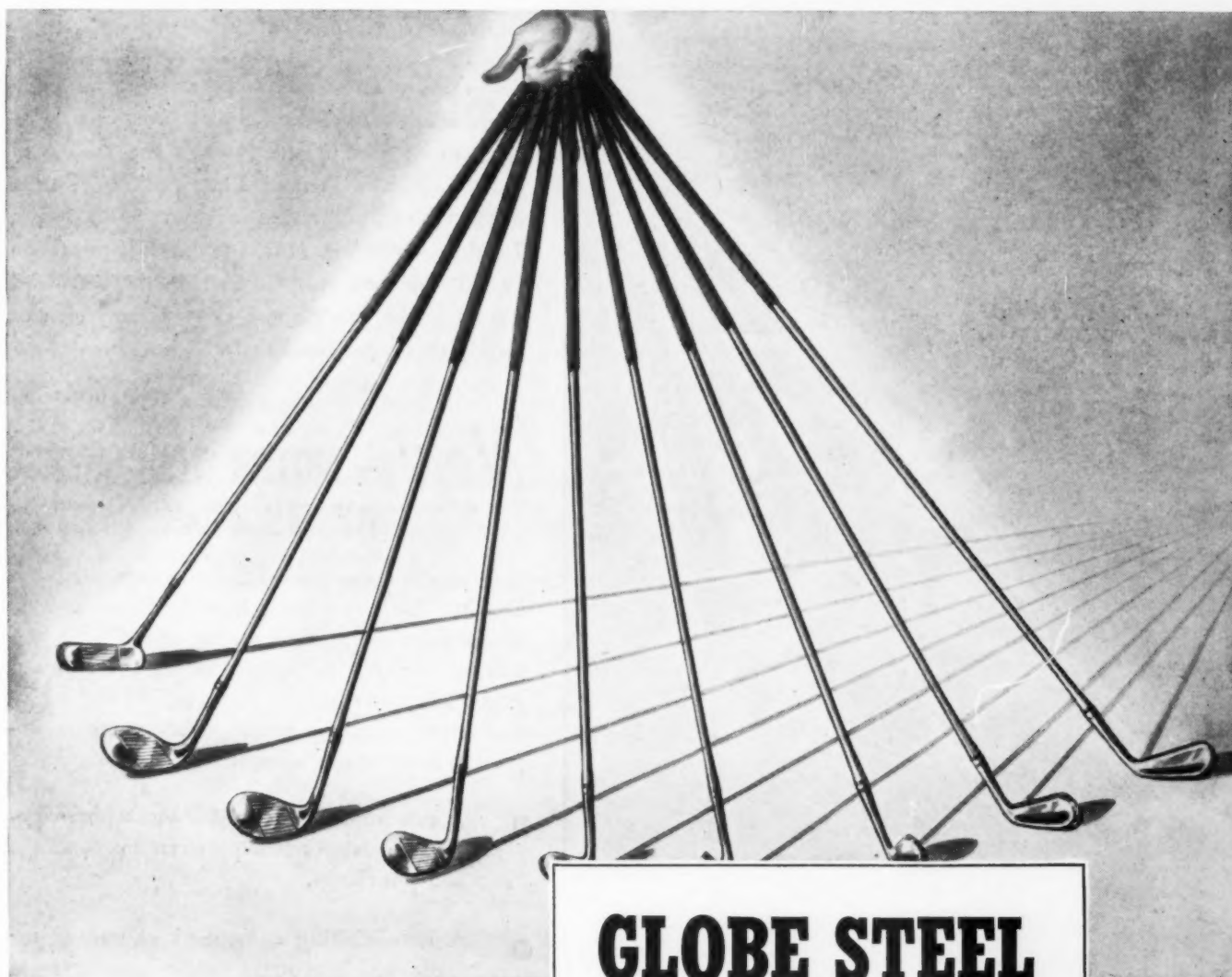
Can you ever forget the fun of using your matched "clubs" for the first time; the thrill that comes each time you swing and feel and hear that solid click peculiar to a shot that's "in the groove". But don't overlook the fact that the shafts of matched clubs are steel tubes. For only with steel tubes can you get the uniformity in strength and weight—(plus economy of manufacture) that makes matched clubs possible.

Globe Steel Tubes Co. does not make matched golf clubs—our business is steel tubes in seamless carbon, alloy, stainless steels — high purity ingot iron tubing known

as Globeiron — and welded stainless steel tubing called Gloweld. And in that business we exercise every precaution and care known to chemistry, physics and metallurgy to produce tubing "matched" in unvarying uniformity and quality. A fully equipped and staffed Globe laboratory helps to make that possible.

Your requirements in steel tubing may be just "staples" — or they may involve problems. In either case you can look to Globe as a dependable source of supply as well as a highly specialized organization eager to explore new fields in tubes and tubing applications.

Globe Steel Tubes Co. • Milwaukee 4, Wisconsin



GLOBE STEEL
Tubes

Seamless Tubes—Carbon—Alloy—Stainless Steels—Welded Stainless Steel Tubing—Gloweld—High Purity Ingot Iron Seamless Tubes—Globeiron Mechanical Tubing—Pressure Tubing—Tubing for Corrosion and Heat Resisting Applications.



5 BILLION



FIVE YEARS IN "SOLITARY"!

Many machine tools in the Bell Aircraft plant at Buffalo have pioneer Tri-Clad motors tucked away inside. The result is a sleek exterior for the machine and valuable floor space saved. During the war, when time was short and uninterrupted production was of utmost importance, these motors gave dependable service, demanding only a minimum of lubrication and inspection.

The Tri-Clad motor you see here driving a milling machine has not been removed for five years. Operating in confined quarters, where the volume of cooling air was limited (and laden with oil), it has done its job faithfully, despite the strain of a 3-shift, 7-day work schedule. Thanks to the extra protection built into this and the more than 200 other Tri-Clad motors in the Bell plant, they give every sign of staying on the job indefinitely.

Now — MOTOR TOUGHNESS AT ITS PEAK

Newest addition to the Tri-Clad motor family is the Tri-Clad totally enclosed, fan-cooled motor. It is designed for use in adverse atmospheres — in iron dust, out-of-doors, in hazardous areas, and chemical atmospheres. Available in both standard and explosion-proof types, this motor gives you these important construction features:

- A cast-iron, double-wall frame which completely encloses and protects the windings and punchings.
- A nonshrinking compound around motor leads which protects motor interior from dust and moisture.
- A rotating labyrinth seal which further protects the motor interior from damage by foreign matter.

MOTOR HOURS

PROVE YOU CAN'T BEAT

TRI CLAD

EXTRA PROTECTION

Since 1941, nearly a million Tri-Clad motors have been purchased by American industry.

Figured conservatively, they have delivered more than 5 billion hours of service — most of this service under war-time conditions when maintenance was infrequent and overloads were the rule.

This Tri-Clad motor record for continuous service under adverse conditions is the best proof we can give you that these motors have *even better protection* than we promised.

Remember, the Tri-Clad motor family now includes dripproof, totally enclosed, vertical, gear, and capacitor-motors. All of these types, we believe, offer you a combination of performance characteristics, horsepower-per-frame-size, and protective features that no other line of general-purpose motors can match. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

EXTRA PROTECTION . . . AGAINST PHYSICAL DAMAGE!

Rigid cast-iron frame and end shields protect vital motor parts from external abuse and also prevent resonance. Because they're not at the mercy of a coat of paint, they strongly resist chemical attack and dampness. Cast iron also gives you tight, *metal-to-metal* fits between end shields and frame.

EXTRA PROTECTION . . . AGAINST ELECTRICAL BREAKDOWN!

Motor windings of Formex* wire, together with improved insulating materials, reduce the chances of electrical failure. Heat is dissipated quickly — motor stays young for years and years!

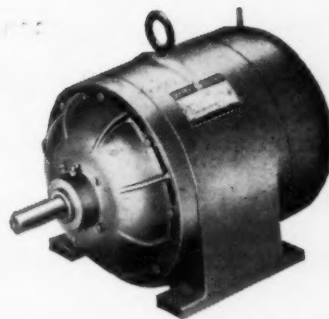
EXTRA PROTECTION . . . AGAINST OPERATING WEAR AND TEAR!

Bearing design affords longer life, greater capacity, improved lubrication features. Bearing seals retain lubricant, keep out dirt. One-piece, cast-aluminum rotor is practically indestructible.

*Trade-mark reg. U. S. Pat. Off.

GENERAL ELECTRIC

750 — 296

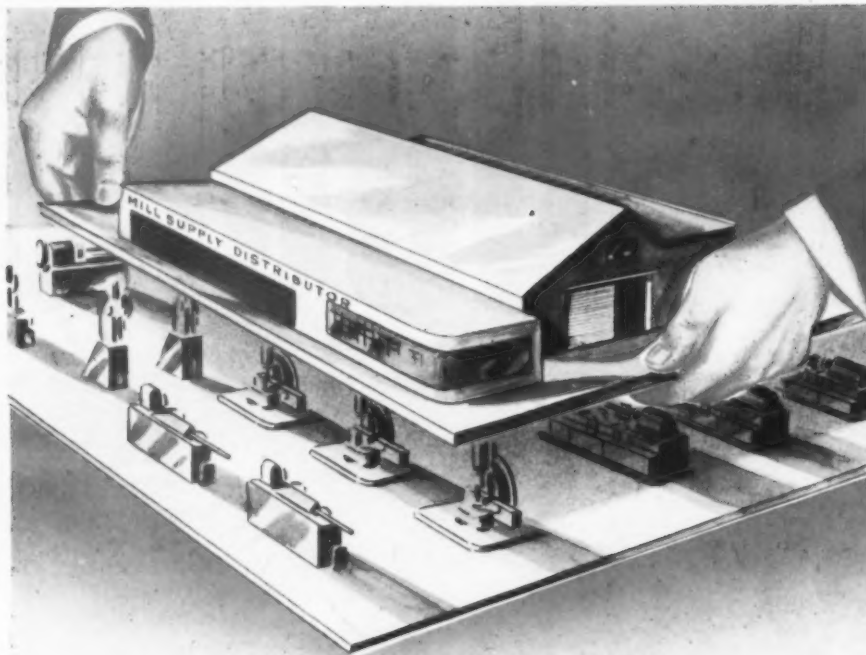


TRI CLAD

REG US PAT OFF

MOTORS

- OPEN (DRIPPROOF)
- TOTALLY ENCLOSED
- EXPLOSION-PROOF



IMAGINE SQUEEZING HIS SET UP INTO YOUR PLANT LAYOUT

Your mill supply distributor's complete stock of tools, materials and equipment is almost as close to you as your own tool cribs and stockrooms. Yet his service adds not one penny to your overhead nor does it steal one inch of productive space. As an expert in supply and procurement specializing in the things you need and use, your mill supply distributor makes a valuable contribution to the well-ordered conduct of your business. He is worth cultivating.

Buy Through Your Distributor

THE L. S. STARRETT CO.
ATHOL • MASSACHUSETTS • U. S. A.

World's Greatest Toolmakers

STARRETT

PRECISION TOOLS • DIAL INDICATORS • STEEL TAPES • GROUND FLAT STOCK
HACKSAWS • BAND SAWS FOR CUTTING METAL, WOOD, PLASTICS

(Continued from page 198)

beveled and cross-grooved to simulate tile, and is painted white at the factory. The light coefficient is 0.75 to 0.80. The board is noncombustible and will span 24" without sag and without cross support. Weight is 0.75 lbs. per square foot.

1 1 1

NEW STARCH RESISTANT TO SWELLING ACTION OF HEAT AND CHEMICALS

A "vulcanized" starch, resistant to the swelling action of heat and chemicals, with countless potential applications in industrial fields, has been announced by the research department of National Starch Products, Inc.

As Vulca starches are available with various degrees of non-swelling and non-gelatinizing characteristics, these properties make them suitable for a variety of industrial purposes.

Wide-spread use of these partially treated starches is suggested by a number of possible applications, for example, as printing thickeners in textile operations, certain creams in cosmetic fields, electrolyte carriers in dry-cell batteries, or as ingredients for pressure soups in the food field. In the printing and paper trades, Vulca starches are adaptable as dusting powders, beater sizings, or as additives to tub sizings.

The completely vulcanized starch, known as Vulca-100, answers industrial requirements for an inert, non-toxic organic filler or ingredient. It can be cooked in boiling water or a five per cent alkaline solution without increasing its average granule size more than five microns. Approximately neutral in water suspension, the starch settles after cooking, because the granules are not appreciably swollen or ruptured.

The product is non-toxic and is not rapidly hydrolyzed by acids or enzymes. Steam sterilization makes no essential change in any of the properties of Vulca-100, according to National's development and testing laboratory.

Research samples of the Vulca starches can be obtained from National at 270 Madison Avenue, New York 16, N. Y.

1 1 1

BASIC SYMBOLS FOR ELECTRIC APPARATUS

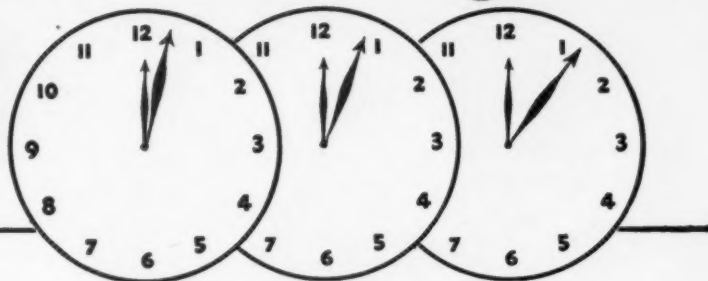
A "master" standard covering symbols used in drawings employed in wide sectors of the electrical field is now ready for distribution, according to P. G. Agnew, vice president of the American Standards Association, New York.

The new standard, "Basic Graphical Symbols for Electric Apparatus", known as American Standard Z32.12-1947, was sponsored by the American Institute of Electrical Engineers and the American Society of Mechanical Engineers.

The standard provides "building blocks", consisting of 152 basic symbols for electrical drawings, which in combinations can be used to describe on

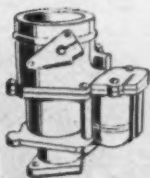
(Please turn to page 204)

How to Cut Metal Cleaning Time to MINUTES



**NEW, FAST-ACTION DETERGENT CLEANS FERROUS
AND NON-FERROUS METALS...Easy to Handle**

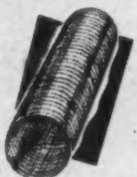
TYPICAL USES FOR Solvent "26"



CARBURETORS
—Solvent "26"
removes gum, gaso-
lene sediment
and other accu-
mulations of dirt.



SPARK PLUGS—
Solvent "26" safely
cleans porcelain;
helps loosen carbon
deposits.



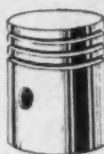
**METAL PLATES
AND SCREENS—**
Solvent "26" re-
stores clear, clean
finish to any metal
surface.



**DIES AND STAMP-
ING—**Solvent "26"
removes drawing
compounds from die-
formed or stamped
metal.



**LABORATORY
EQUIPMENT—**
Solvent "26"
frees glass and
metal tubing and
their supports of
gums, varnishes
and other incrus-
tations or de-
posits.



PISTONS—Re-
moves lacquers,
gums, resins, etc.
from gas, gasoline
and diesel engine
pistons and rings.
Also effective for
cleaning all parts
of dismantled motors, engines
and machinery.

REMOVES:

Oil • Grease • Gums • Varnishes • Lacquers • Paints
Carbonaceous Deposits • Asphaltic Products

FROM:

Steel • Cast Iron • Aluminum • Porcelain • China
Chrome and Nickel Plate • Stone • Precious Metals
Brass • Washable Fabrics

Used throughout the war in critical industry as a superior cleaning agent, newly-developed SOLVENT "26" is now available for all industrial needs.

Offering many advantages in time, labor and cost over other present cleaning methods . . . Solvent "26" is so effective a detergent it can be used at *ordinary* room temperatures.

The fast action of Solvent "26" reduces cleaning time from hours to minutes on dismantled engine parts and all kinds of machinery. Simply dip, rub, brush or spray it on. Then flush clean with hot water.

Mail the coupon today for literature and information leading to a demonstration of this unique product in your own plant.

CITIES

SERVICE

Cities Service Oil Co.
NEW YORK • CHICAGO

Arkansas Fuel Oil Co.
SHREVEPORT, LA.

CITIES SERVICE OIL COMPANY
SIXTY WALL TOWER, NEW YORK 5, N. Y., ROOM 120

Please contact me for a demonstration of
Solvent 26.

NAME

TITLE

ADDRESS

CITY STATE



FEATURES

Tool steel jaws
— renewable.
Solid cast underportion
— no slack.
Oversize steel screw and
malleable iron nut.
Tension spring handle.
Swivel base, 360° swing,
positive auto-type lock.

● PARKER VISES have the oversize ruggedness built-in to stand up under hard use over a long service life. To make this power productive, they are accurately machined and assembled—combining features that speed up work and cut production costs. Specify Parkers next time from your distributor. The Charles Parker Co., Meriden, Conn.

PARKER VISES

America's First Vise Maker

The Wire of a Thousand Uses

JOHNSON XLO MUSIC SPRING WIRE gives you maximum tensile strength, absolute uniformity of all physical properties now available with special corrosion resistant coating. Johnson special alloy coating has definite lubricating qualities, reducing tool wear, perfect base for soldering or plating. Withstands 700° Fahrenheit. Sizes .003" to .080".

Your nearest Johnson branch will give you prompt service.



JOHNSON

STEEL AND WIRE COMPANY, INC.
WORCESTER 1, MASS.

NEW YORK AKRON DETROIT CHICAGO LOS ANGELES TORONTO

(Continued from page 202)

electrical diagrams an almost endless variety of circuits and other electrical devices.

The new work, which supplements a standard (Z32.11-1944) developed in 1944, was done by a committee (Z32) under the chairmanship of W. L. Heard of the Bell Telephone Laboratories. The 1947 standard may be described as a "master" standard because it covers basic graphical symbols and their components in the power, electrical control and communications fields.

The symbols covering these three fields previously have been available in separate standards (Z32.3; Z32.5; Z32.10), but the new work makes it possible for electrical engineers, draftsmen and others to build up practically any of the symbols in the three separate standards from the present "master" symbol code.

Some of the classes of symbols treated in the new standard include those covering the electronic, thermionic and cold cathode fields, and photo-emissive tubes, transformers, inductors and capacitors.

1 1 1

BROCHURE ON STAINLESS STEEL IN PETROLEUM INDUSTRY

The role played by stainless steel in the development of the petroleum industry, and a general forecast of its future applications in the varied phases of processing of oil, is comprehensively explained in a new semi-technical brochure just published by the Allegheny Ludlum Steel Corporation, of Pittsburgh.

Entitled "Allegheny Metal in the Petroleum Industry," the 36-page booklet, handsomely illustrated with pictures and graphic charts, deals in 12 chapters with such topics as the crude oil fields, the synthetic rubber industry, the oil refining industry, cycling and natural gas, oil transportation and storage, the marketing of oil and oil products and the fabrication of stainless steel.

The brochure is directed principally to business men, technologists and engineers in the oil industry itself, but because of its general treatment of the theme and the historical data it contains, it is equally valuable as a supplementary educational textbook. It was compiled with the aid of experts in the oil industry, together with fabricators and distributors of Allegheny stainless steel equipment used in the petroleum business.

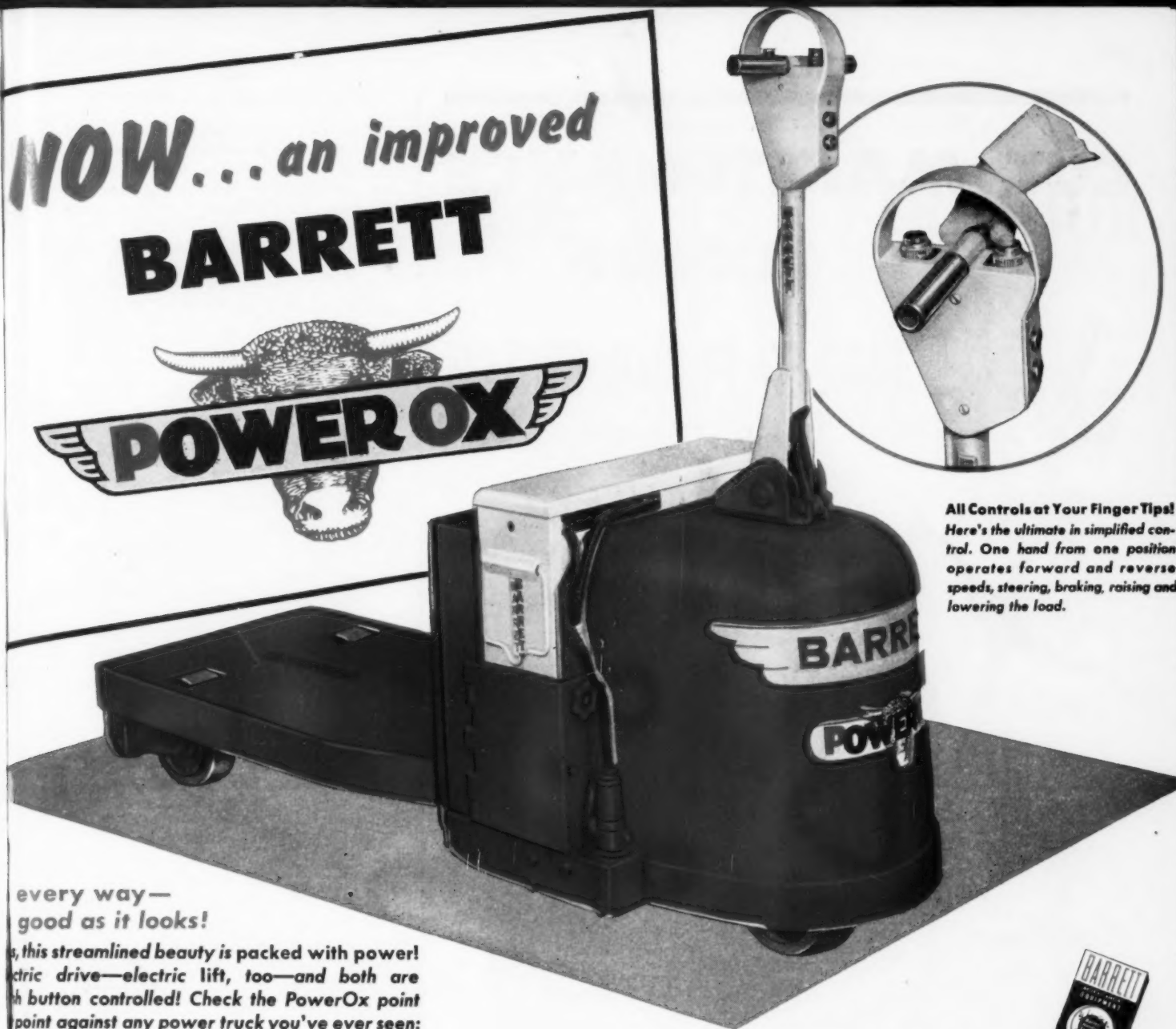
1 1 1

PUBLICATION ON GLUE JOINTS

A new illustrated publication on the adhesion or holding qualities of glue when applied to wood has been issued by the New York State College of Forestry at Syracuse University. It is titled "A Study of Adhesion in the Glue Lines of Twenty-two Woods of the United States", and deals with the testing of twenty-two kinds of domestic woods with two brands of glue. Copies may be obtained by writing to the N. Y. State College of Forestry, Extension Dept., Syracuse 10, N. Y. Price is 50 cents a copy.

(Please turn to page 206)

**NOW... an improved
BARRETT**



All Controls at Your Finger Tips!
Here's the ultimate in simplified control. One hand from one position operates forward and reverse speeds, steering, braking, raising and lowering the load.

every way—
good as it looks!

...this streamlined beauty is packed with power! Electric drive—electric lift, too—and both are button controlled! Check the PowerOx point point against any power truck you've ever seen:

TWO CAPACITIES . . . 4000 or 6000 pounds.

ELECTRIC TRAVEL . . . Heavy duty motor . . . large diameter, wide face front wheel. PowerOx travels at steady walking speed whether empty or loaded—no speed-ups or lagging.

ELECTRIC LIFT . . . Full 4-inch lift in 4 seconds. Aircraft type hydraulic gear pump is in direct connection with drive motor.

HIGH CLEARANCE . . . Sturdy, deep-section frame will not snag on inclines, door sills, etc. The PowerOx is available in 6", 7", 9" and 11" height—all with a full 4-inch lift.

STEERING . . . Steer with full power through 270 degrees—greater than any other truck!

BRAKING . . . Brake with handle in horizontal or vertical position. Brakes are automatic, automotive type . . . respond instantly to a slight pressure on handle.

CONTROL . . . Control with your finger tips the two speeds forward, two reverse, also lifting and lowering—all with the handle in any position!

Full details on the improved PowerOx are yours for the asking. Drop a card to

BARRETT-CRAVENS COMPANY

3280 West 30th Street • Chicago 23, Illinois

Representatives in All Principal Cities

Canadian Licensee: S. A. Armstrong, Ltd. • Toronto, Canada

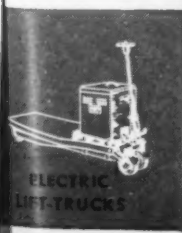


Send for the little book that saves big money—your Free copy of the Barrett Junior Catalog!



BARRETT

ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT.

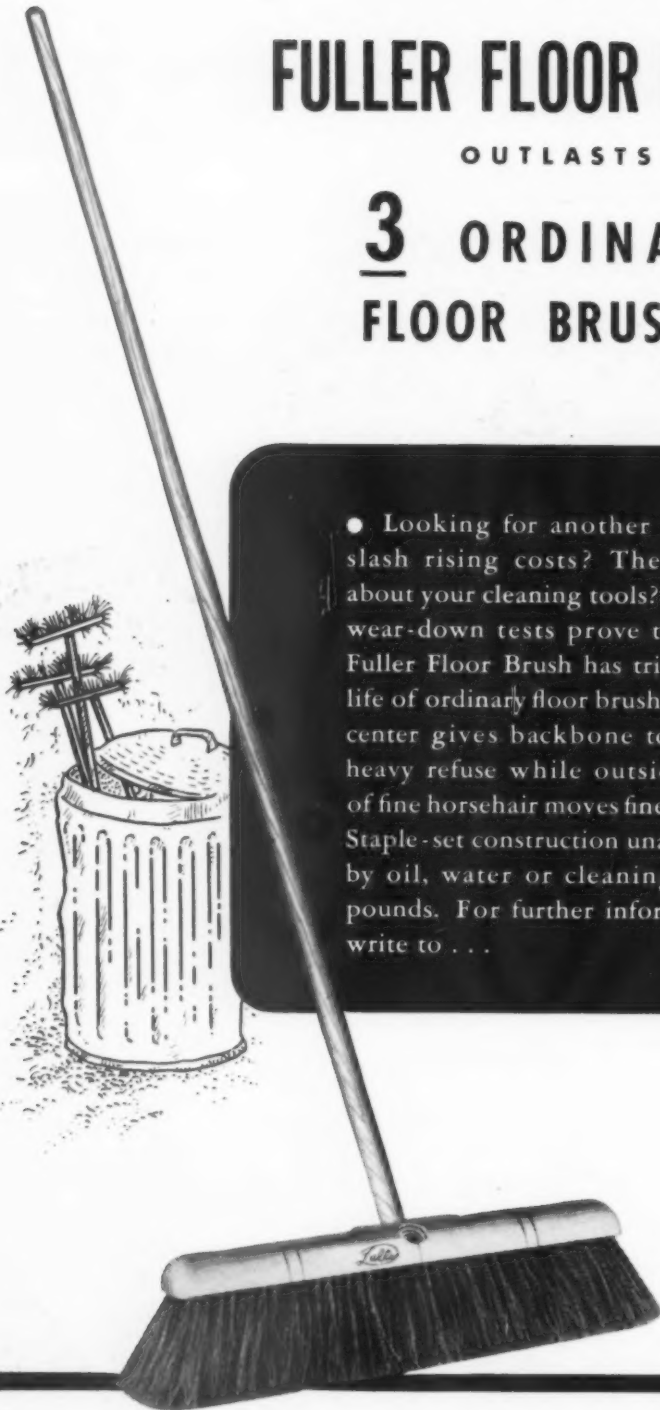


CUT MAINTENANCE COSTS

FULLER FLOOR BRUSH

OUTLASTS

3 ORDINARY
FLOOR BRUSHES



● Looking for another way to slash rising costs? Then how about your cleaning tools? Actual wear-down tests prove that the Fuller Floor Brush has triple the life of ordinary floor brushes. The center gives backbone to move heavy refuse while outside row of fine horsehair moves finest dust. Staple-set construction unaffected by oil, water or cleaning compounds. For further information write to . . .

INDUSTRIAL DIVISION, DEPT. 976

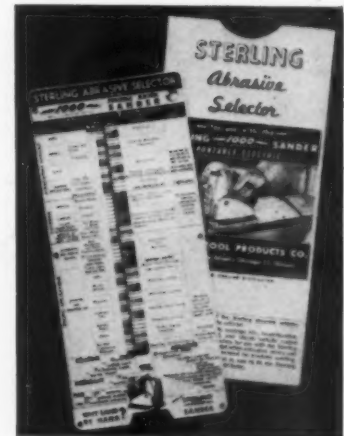
★ **The FULLER BRUSH Co.** ★

FULLER PARK • HARTFORD 2, CONN.

SLIDE RULE ABRASIVE SELECTOR

Slide rule type abrasive selector is said to indicate the proper abrasive combinations for 120 specific sanding and finishing problems. It is plastic coated for durability and designed in three colors for quick and accurate reading.

The Abrasive Selector indicates: (1) the kind of abrasive for the job; (2) abrasive grit sizes for various finishing operations on many types of materials; (3) the type of coating (open, closed, waterproof, etc.); (4) lubricant to be used, if any; (5) the proper pad to be used on the sander. Added information



Abrasive Selector simplifies sanding and finishing procedures.

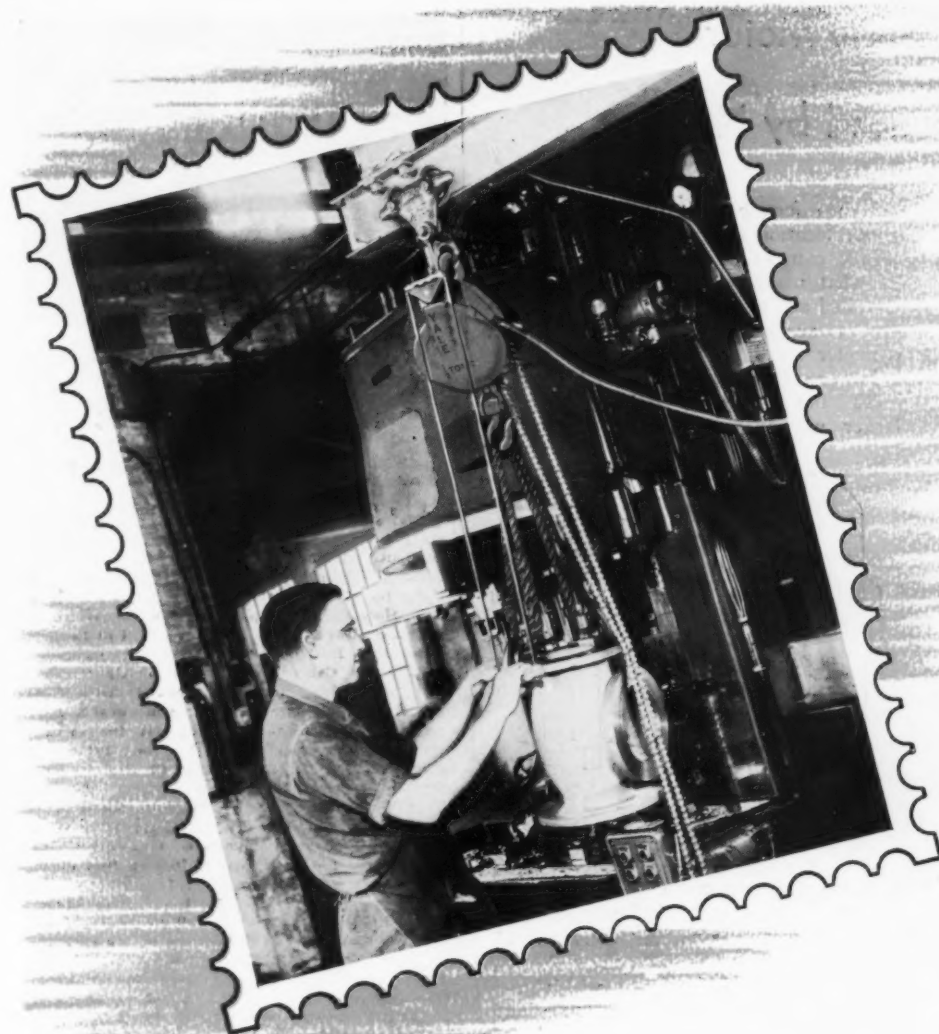
pertaining to specific applications is included in the form of marginal notes. The Abrasive Selector is made by Sterling Tool Products Co., Chicago, Ill., manufacturers of portable sanders, and may be obtained through authorized Sterling distributors at a nominal cost.

1 1 1

ELECTRIC SALT BATH HEAT-TREATING AND PROCESSING

Handsomely-bound 72-page illustrated booklet No. 116, published by the Ajax Electric Co., Inc., Philadelphia 23, Pa., covers the subject of electric salt bath heat treating and processing. It first discusses the general advantages of salt bath heat treating and explains the electrodynamic self-circulating principle of the Ajax-Hultgren furnace, advantages derived therefrom, etc. Other sections are devoted to various bath salt heat treating operations and processes including: neutral hardening, isothermal processing, liquid carburizing, Cyanide hardening, nitriding high speed steel, heat treating aluminum, annealing, descaling and cleaning, dip brazing, heating for forging, and tempering and coloring.

Because of its costliness and limited edition, this booklet is available only to metallurgists and metalworking executives whose requests are sent directly to the company on their firm's letterheads. Specify Booklet No. 116.



PER-HOUR COST FOR THIS YALE POWER—

IS NO MORE THAN THIS POSTAGE STAMP



Imagine moving tons of castings for pennies. That's all it costs when this Yale Midget King Electric Hoist does the lifting. It would cost you many times that amount if muscle did the work.

Not only is material handling much less costly when Yale power replaces man power, but you also get more output per

man hour, faster, safer, more efficient handling of material.

For more detailed facts on how Yale Material Handling Machinery can cut your production costs, phone our nearest representative, or write direct to: The Yale & Towne Manufacturing Co., 4530 Tacony Street, Philadelphia 24, Pennsylvania.



MATERIAL HANDLING MACHINERY

CUTS PRODUCTION COSTS . . . SAVES TIME . . . SAVES EFFORT . . . PROMOTES SAFETY



KRON INDUSTRIAL SCALES • HOISTS — HAND AND ELECTRIC • TRUCKS — HAND LIFT AND ELECTRIC

New "D" Flange Motor Mounting Announced by NEMA

"Development of standards for a universal flange mounting for both horizontal and vertical end-shield mounted electric motors is the latest major accomplishment by the National Electrical Manufacturers Association Motor and Generator Section," according to C. P. Potter, Section Chairman, in announcing to the trade the new NEMA "D" flange.

Soon after the adoption of mounting dimensions for horizontal motors in 1930, the Section gave its attention to the problem of standardizing the mountings for vertical shaft motors. The first standard covered a ring base having a diameter larger than the motor frame. This was the NEMA "V" mounting.

To fill the desire for end-shield mounted horizontal motors, particularly for machine tool application, dimensions were worked out for a special flange, standardized as the NEMA "A" flange mounting. Later, modified as the NEMA "B" flange, it had considerable acceptance in the machine tool industry because of its smaller over-all diameter.

Experience over the years with these mountings indicated the possibility of developing a single mounting which would serve for both vertical and horizontal shaft end-shield mountings and would be particularly acceptable to the machine tool industry through change from the female rabbit fit characteristic of the "B" flange standard.

To this end a joint committee of representatives from NEMA and the National Machine Tool Builders Association was formed to consider the standardization of motors applied to machine tools. This committee developed a new flange known as the NEMA "D" and established flange dimensions for motors built in frames 203 to 305, which cover ratings from 1 to 125 hp inclusive, at 1750 rpm. Five "D" flanges accommodate the spread of the sixteen different NEMA standardized motor frame sizes.

Four Principal Features

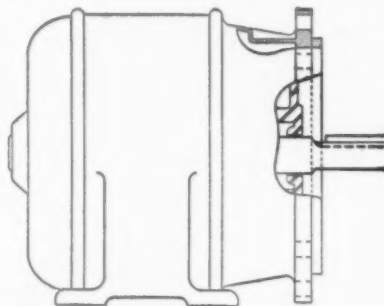
This new flange has four principal features, apparent in the illustration, which are marked improvements.

1. The NEMA "D" flange has a male rabbit.
2. The face of the NEMA "D" flange is in line with the shaft shoulder.
3. The diameter of the flange is not greater than the diameter of the motor, except on frames 203 and 204.
4. The motor mounts on the machine from the motor side. Mounting bolts go through the flange from the motor side.

With this mounting, the only machining necessary on a machine tool or other machine frame, upon which the motor fits, covers an area equal to the diameter of the rabbit. It is not necessary to finish the larger surface needed

where a female rabbit fit is used. The exact location of gears, pulleys or couplings can be predetermined regardless of what make motor will eventually be installed and no extra machining is needed to accommodate the larger shaft diameter above the shoulder.

Flanges for smaller motors have four holes for mounting bolts—those for larger motors are provided with eight



Schematic Diagram of Motor with New
NEMA "D" Flange Mounting

holes to carry the extra weight. Motors built with NEMA "D" flanges can be had either with or without conventional motor feet.

The new standard design which can be used in place of three former designs confers obvious benefits on the machinery and tool builder, the motor manufacturer, and the motor user.

In addition to the mechanical advantages of the new design, other benefits which can accrue to suppliers of motor-equipped machines and their customers are: uniformity of flange mounting details among those motor builders who follow the NEMA standard, wider availability and interchangeability of motors, quicker delivery, increased sources of supply, and a reduction in standby requirements for protection against emergency shutdowns.

1 1 1

BOOKLET FOR AVIATION INDUSTRY

Products and research facilities for the aviation industry are outlined in a 16-page illustrated booklet (B-3775) recently announced by the Westinghouse Electric Corporation.

The booklet lists eleven of the company's plants serving the aircraft industry and describes their research, engineering and production programs. A few of the products referred to include air-born electrical equipment, micarta pulleys and structural parts, lamps and lighting equipment for aircraft, airways and airports, etc. Copies may be obtained from Westinghouse Electric Corp., P. O. Box 868, Pittsburgh, Pa.

(Please turn to page 210)

Where to buy

ESNA
TRADE MARK

**ELASTIC
STOP NUTS**

INDUSTRIAL JOBBERS

COLORADO: M. L. Foss, Inc., 1901 Arapahoe St., Denver. **CONNECTICUT:** C. S. Mersick & Co., 260 State St., New Haven. **ILLINOIS:** Supplies, Inc., 564 West Adams Street, Chicago; Globe Machinery & Supply Co., 617 Fifteenth St., Moline. **INDIANA:** The Central Rubber & Supply Co., 120 South Meridian St., Indianapolis. **IOWA:** Globe Machinery & Supply Co., 205 Third Ave., S. W., Cedar Rapids; Globe Machinery & Supply Co., East First St. & Court Ave., Des Moines. **KENTUCKY:** Neill-LaVie Supply Co., Inc., 505 West Main St., Louisville. **MARYLAND:** Carey Machinery & Supply Co., 119 East Lombard St., Baltimore. **MASSACHUSETTS:** Chandler & Farquhar Co., 900 Commonwealth Ave., Boston; J. Russell & Co., Inc., 361 Dwight St., Holyoke; Brierly, Lombard & Co., Inc., 107 Foster St., Worcester. **MICHIGAN:** The Charles A. Strelinger Co., 149 East Larned St., Detroit. **MINNESOTA:** Kelley-How-Thompson Co., 309 South Fifth Ave., Duluth; Kulseth Supply Co., 117 Washington Ave., Fergus Falls; Minneapolis Iron Store, 524 North Washington, Minneapolis; Uptown Iron Store, 918 West Lake St., Minneapolis; Berg Supply Co., Willmar. **MISSOURI:** The Faeth Co., 1608 McGee St., Kansas City. **MONTANA:** Kelley-How-Thompson Co., Billings. **NEW JERSEY:** Brodhead-Murphy Co., 525 West Grand St., Elizabeth. **NEW YORK:** Beals, McCarthy & Rogers, Inc., 50 Terrace, Buffalo; A. N. Nelson, Inc., 370 Hamilton Ave., Brooklyn; Keystone Nut & Bolt Co., 62 Murray St., New York City; Syracuse Supply Co., 314 West Fayette St., Syracuse. **NORTH DAKOTA:** Empire Supply Co., Fargo; Minot Supply Co., Minot; Grand Forks Supply Co., Grand Forks. **OHIO:** The E. A. Kinsey Co., 331 Fourth St., West Cincinnati; Strong, Carlisle & Hammond Co., 1392 West 3rd St., Cleveland; The Smith Brothers Hardware Co., 580 North Fourth St., Columbus; The M. D. Larkin Co., 115 East Third St., Dayton; Mill & Factory Supply Co., 622 Southard St., Toledo. **PENNSYLVANIA:** Emco Supply Co., Lansford; Standard Shannon Supply Co., 13 Letitia St., Philadelphia; Somers, Fitter & Todd Co., 327 Water St., Pittsburgh; E. Keeler Co., 238 West St., Williamsport. **RHODE ISLAND:** The Congdon & Carpenter Co., 405 Promenade St., Providence. **SOUTH CAROLINA:** Taylor Parker Co., Florence. **SOUTH DAKOTA:** Aberdeen Supply Co., Aberdeen; Cave Supply Co., Watertown. **TEXAS:** Peden Iron & Steel Co., 700 North San Jacinto St., Houston. **VIRGINIA:** Taylor Parker Co., Inc., 47 Commercial Place, Norfolk; Taylor Parker Co., Inc., 801 East Carey St., Richmond. **WASHINGTON:** Northwest Nut & Bolt Co., 4502 Fourteenth Ave., N. W., Seattle. **WEST VIRGINIA:** Superior Sterling Co., 200 Bluefield Ave., Bluefield. **WISCONSIN:** John Pritzlaff Hardware Co., 333 North Plankinton Ave., Milwaukee.

SALES OFFICES AND SALES ENGINEERS

A. K. Whitaker, 4076 Powers Ferry Rd., N.W., ATLANTA, Ga.; 20 North Wacker Drive, CHICAGO, Ill.; 1836 Euclid Ave., CLEVELAND, Ohio; 522 New Center Bldg., DETROIT, Mich.; R. G. Brandes, 1205 Milford St., HOUSTON, Tex.; Collins-Powell Co., 9247 Alden Dr., Beverly Hills, LOS ANGELES, Calif.; 115 Broadway, NEW YORK CITY; H. J. Forst, 225 Catalpa Place, PITTSBURGH, Pa.; 2330 Vauxhall Rd., UNION, N. J. In CANADA: A. J. Campbell & Co., Box 430 (Place d'Armes), Montreal.

The ESNA advertisement shown opposite this column explains the dependable protection provided by all types of Elastic Stop Nuts.

NEW! Self-Locking Wing Nuts

**FOR DETACHABLE OR
ADJUSTABLE ASSEMBLIES**

FOR USE ON:
Automobiles
Electrical Equipment
Children's Toys
Household Appliances
Office Equipment
Garden Accessories
Furniture



Size Range: 8-32 10-24 10-32 12-24 12-28 1/4"-20 1/4"-28

*—with a Nylon Red Elastic Collar
that provides dependable REUSABILITY!*

Self-locking wing nuts fulfill a long-standing need. Many detachable or adjustable assemblies require the convenience of a wing nut. Yet, such assemblies have always suffered from the inability of ordinary wing nuts to stay tight. ESNA has provided the answer to this problem with a self-locking, self-sealing Wing Nut with a reusable Nylon Red Elastic Collar.

The new ESNA Wing Nuts—like all Elastic Stop Nuts—remain self-locking against Vibration, Impact and Stress Reversal in both fully seated and positioned settings. Yet, they are readily removed by hand. They do not deform the bolt,

damage the threads or gall the finish.

Many opportunities exist to improve finished products and to increase their serviceability through the use of ESNA Wing Nuts. They will eliminate all wear now caused by loosened fasteners . . . permit accurate final adjustments, easy removal for quick replacements and product redesign for faster assembly. Leading industrial distributors are stocked and ready to serve you. For further information address: Elastic Stop Nut Corp. of America, Union, N. J. Sales Engineers and Distributors are located in principal cities.



**LOOK FOR THE RED COLLAR
THE SYMBOL OF SECURITY**

It is threadless and dependably elastic. Every bolt—regardless of commercial tolerances—impresses (does not cut) its full thread contact in the Red Elastic Collar to fully grip the bolt threads. In addition, this threading action properly seats the metal threads—and eliminates all axial play between the bolt and nut.

All ESNA Elastic Stop Nuts—regardless of size or type—lock in position anywhere on a bolt or stud. Vibration, impact or stress reversal cannot disturb prestressed or positioned settings.



ELASTIC STOP NUTS



INTERNAL
WRENCHING



ANCHOR



WING



SPLINE



CLINCH



GANG
CHANNEL



CAP

PRODUCTS OF: ELASTIC STOP NUT CORPORATION OF AMERICA

RITCO

Precision
ROLLED THREADS
TO SOLVE YOUR SPECIAL
FASTENER PROBLEMS

Accurate thread form — class 4 tolerance — precise lead. • Highly finished threads—no tool marks. • Increased tensile strength—continuous grain flow.

THREAD LENGTHS

Soft Metals, up to 2½" diameter x 3" long — any pitch.

Heat Treated Metals (Rockwell C-31).

Fine thread series up to 2½" diameter x 2" long.

Coarse thread series up to 1½" diameter x 2" long.

— Remember RITCO for —
Special Bolts, Nuts and Studs • Alloy Steel Studs • Milled Body Bolts • Drop Forging • Diesel Engine Bolts and Studs

Let us quote on your specifications

RHODE ISLAND TOOL CO.

148 West River Street, P. O. Box 1516
PROVIDENCE 1, RHODE ISLAND

SERVING AMERICAN INDUSTRY SINCE 1834

GENERAL BOX BOOKLET AVAILABLE

A new issue of the General Box Company's booklet, "The General Box", is available from the company at 400 W. Madison St., Chicago, Ill. The booklet describes the assembly and use of Wirebounds in the Delta plant; Wirebounds and Wirebound Lagging in the Dodge plant, and Cleated Corrugated in the Magnavox plant. Included also is

Surplus government-owned switch—additional information of packing and materials handling interest.

1 1 1

UNDERGROUND CONVEYOR BELT USES SHOWN IN FILM

"The Way Out" is a full-color 16 mm sound movie portraying underground uses of conveyor belts, said to be the first successful color movie ever made in an underground mine. It traces the story of the transportation of coal, beginning with the "back-breaking" days centuries ago up to today's latest type conveyor belt systems. It is a sequel to "The Way Over The Mountain", which feathered a Goodyear crosscountry belt. Designed for showing before technical groups, mining concerns, engineers, etc., bookings may be obtained by writing to the Sales Promotion Dept., Goodyear Tire & Rubber Co., Akron, 16, Ohio.

1 1 1

PLASTICS MACHINERY FILM

The story of completely automatic plastics molding is told in a 30-minute color and sound motion picture, "Robots at Work", produced for the F. J. Stokes Machine Co., Philadelphia, Pa., by Hathen Productions.

Various methods of compression molding of thermosetting plastics and action shots of hand presses, simple hydraulic presses, and semi-automatic presses are shown with the advantages and disadvantages of each. Also shown and described are the Stokes 15-ton and 50-ton completely automatic molding machines. The film is available for showing before engineering and manufacturing associations and industrial plant groups. Requests for booking should be made to Hathen Productions, Inc., Philadelphia, 3, Pa., on company or association letterhead.

1 1 1

INDUSTRIAL GASKET FILM

A 30-minute color and sound motion picture entitled "Only A Gasket" depicts the technique employed in the manufacture of gaskets for a wide variety of purposes. It was produced by Hathen Productions for the Goetze Gasket & Packing Co., New Brunswick, N. J. It is distributed free to engineering and business association groups and industrial plant personnel by Hathen Productions, Inc., Philadelphia, 3, Pa. Requests should be made on company or association letterhead.

NEW MINERVA



Non-breakable coil-spring constructed Stopwatches. A new principle developed by scientific research eliminates friction and wear.

The *ONLY* timers with knee action. The first positive technical improvement in the construction of stopwatches in the past 25 years. Guarantees continual accuracy and longevity. Life-time "flyback to Zero."

We have eliminated "Flat Levers" now used in every other make. These flat levers can never be depended on. They break too easily.

Not one "Coil Spring" broken in 10 years.

Our Highest and Proudest Achievement Toward Infallible Dependability.

Write for catalog and prices.

M. DUCOMMUN CO.

580 Fifth Ave., New York 19, N. Y.

In
CLEVELAND
IT'S THE
HOLLENDEN

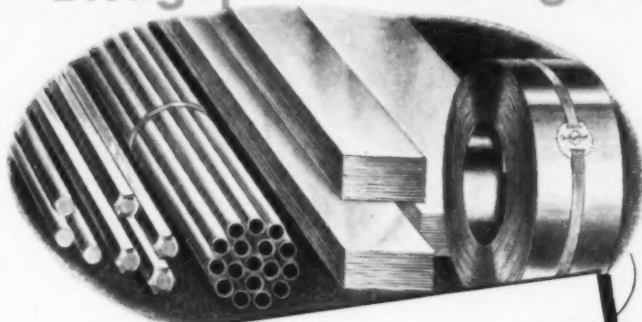


1000 Rooms with Bath
Radio in Every Room
Six Fine Restaurants
Garage Attached
Central Downtown
Location

JAMES J. FITZPATRICK
GENERAL MANAGER

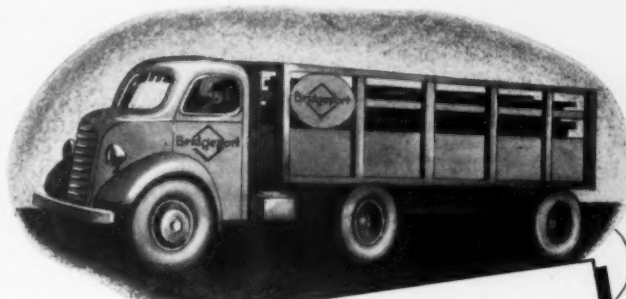
FOR YOUR CONVENIENCE...

Bridgeport's Strategically Located Warehouses



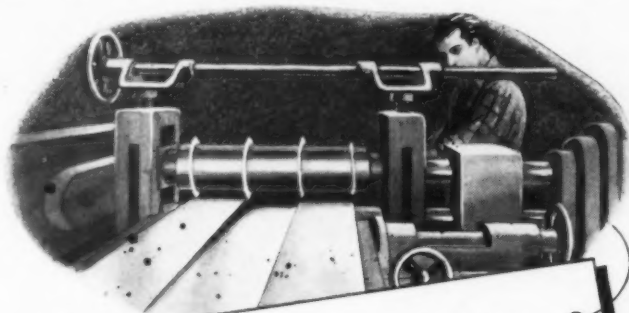
CONTROLLED QUALITY

Strip metal of proven quality and temper for drawing, stamping and spinning operations requiring the minimum amount of polishing. Phosphor Bronze. Ledrite** rod for high-speed screw machine operation. Brass and Duronze* screw wire for cold upsetting. Miscellaneous tubing, pipe and copper water tubing.



PROMPT DELIVERY

Make more use of Bridgeport's conveniently located warehouses, which carry a variety of alloys in various shapes and sizes to help you with immediate delivery of limited quantities.



SLITTING SERVICE

This is available at warehouses for slitting wide coils of Brass, Copper, Phosphor Bronze and Nickel Silver strips into narrower widths to meet specific requirements.



TECHNICAL AIDS

Bridgeport's literature and technical service are available to help you solve problems in the selection and application of brass, copper and engineering alloys.



Call Your Local Office for Warehouse Service

Warehouse and Jobber Stocks Available for Prompt Delivery

BRANCH OFFICES AND ★ WAREHOUSES

Atlanta 3, Georgia...701 Volunteer Building
Boston 16, Massachusetts...524 Statler Bldg.
★ Chicago 32, Illinois...3453 W. 47th Place
Cincinnati 2, Ohio...1703 Carew Tower
★ Cleveland 6, Ohio...1921 E. 119th Street
★ Denver 2, Colorado...1962 Blake Street
Detroit 26, Michigan...2328 Buhl Bldg.
Grand Rapids 2, Mich...510 Assoc. Com. Bldg.

★ Houston 1, Texas...2216 Walker Avenue
Indianapolis 4, Indiana...Circle Tower Bldg.
Jacksonville, Florida, 5133 Appleton Avenue
★ Los Angeles 12, California, 130 S. Hewitt St.
Milwaukee 2, Wisconsin, 715 N. Van Buren St.
★ Minneapolis 1, Minnesota, 100 N. Second St.
★ Newark 8, New Jersey...325 Jelliff Avenue
New York 17, New York...420 Lexington Ave.
New York—Jobber Stocks Available

Philadelphia 3, Penn...Broad St. Sta. Bldg.
Pittsburgh 19, Pennsylvania, 1322 Gulf Bldg.
★ Providence 3, Rhode Island...60 Clifford St.
Rochester, New York, 816 Reynolds Arc. Bldg.
★ St. Louis 3, Missouri...2135 Delmar Blvd.
St. Paul 5, Minnesota...703 Ashland Avenue
★ San Francisco 3, California...1155 Bryant St.
Washington 5, D. C...715 Southern Building

BRIDGEPORT BRASS COMPANY • Bridgeport 2, Conn. • Established 1865

Mills at Bridgeport, Conn., and Indianapolis, Ind.—In Canada: Noranda Copper and Brass Limited, Montreal

*Reg. U. S. Pat. Off.
**Trademark



Brass-Bronze-Copper-Duronze
STRIP ROD WIRE TUBING

BRIDGEPORT BRASS

Among the ASSOCIATIONS

The Program Chairman and His Job

Not a One-Man Job—Development of Successful Meetings
Requires Cooperation of Chairman, Committeemen,
Association Officers and Members

ONE of the most important committee chairmen in the entire organization is the person in charge of programs. He must work closely with the president and the executive secretary to see that the aims and objects of the association are properly carried out thru the medium of programs at the meetings.

Four Types

Programs should properly be divided into at least four categories. They are:

1. Business of the association.
2. Reports of standing and special committees and action on recommendations.
3. Informative program.
4. Entertainment.

Association business is difficult to handle at meetings designed primarily

The accompanying report on programming association meetings was presented at Third District Conference, N. A. P. A., at Minneapolis, Minn., on April 16, by L. S. Clark, national director of the Twin City Purchasing Agents Association, (Minneapolis and St. Paul). Mr. Clark is purchasing agent for the Twin City Hardwood Lumber Company.

for social and educational purposes. We have found it most desirable to keep business at meetings to a minimum. It is far better to hold special get-togethers of the board of directors to handle such necessary matters.

Committee reports are usually dull, dreary monotonous things and as much as possible should be eliminated from regular meetings. The entertainment, convention and program committees are about all that should have any time and these only when they really have something to say.

For many years we listened to the Business Survey Committee report. Several years ago this was discontinued in the local association without apparent loss. The questionnaire method discussed later seems to be a better way of getting first hand information. Full information, too, appears in the weekly bulletin.

The secretary of the association usually has a few reports and announcements to make. These should have a definite place on the program but limit him to a few well chosen words. Guests should be introduced and welcomed. Such rou-

tine business can be disposed of in short shrift so as to get to the real meaty part of the evening's program.

The national director, being the liaison man between the National and local association can, in a brief report to the local members, give them whatever messages are necessary from the National, and can, thru his intimate knowledge of the local, transmit to national headquarters effectively and with fidelity, the

feelings of the members of the local.

Pre-Meeting Conferences

Some associations conduct pre-meeting conferences or seminars on assigned subjects for free discussion of purchasing matters. This is a good idea provided topics are of sufficient general interest to attract numbers. Experience however has shown it is not good policy to attempt too extensive a program involving member participation. Many purchasing agents come to the end of the day tired of their own problems and want to relax. Another meeting before the big general one is like a double feature in a movie, something to be suffered thru in order to

(Please turn to page 216)

E. R. Francis Heads Central N. Y. Association

E. R. Francis, Rollway Bearing Co., Syracuse, was elected president of the Purchasing Agents Association of Syracuse & Central New York at the April 23rd meeting in Syracuse.

Other officers who were elected at the same time to serve for the 1947-1948 year include the following: J. E. Edmonds,

Lipe-Rollway Corp., first vice president; D. H. Covert, International Business Machines Corp., second vice president; M. Riepel, Alexander Grant's Sons Co., treasurer; G. L. McCaffrey, Auto-Lite Battery Corp., Owen-Dyneto Division, secretary, and C. L. Patchin, Firth Carpet Co., national director.



Newly-elected officers of the Purchasing Agents Association of Syracuse & Central New York. Standing (l to r) C. L. Patchin, national director; M. Riepel, treasurer; G. L. McCaffrey, secretary. Seated (l to r) J. E. Edmonds, 1st vice president; E. R. Francis, president; D. H. Covert, 2nd vice president.



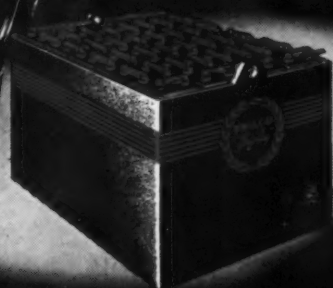
Power-up for 'round-the-clock schedules

Modern battery-powered trucks will give you all the capacity you need plus safety, every-day dependability

and freedom from maintenance. When all the costs are counted, battery-power costs less!

The 10% extra capacity, and longer life of Philco "Thirty" Storage Batteries have

introduced a new era in low-cost handling. Write for latest catalog of specification data.



PHILCO

STORAGE BATTERIES

PHILCO CORPORATION • STORAGE BATTERY DIVISION • TRENTON 7, NEW JERSEY

P.A. REPORTS TO MANAGEMENT TOPIC AT NEW YORK FORUM

A highly successful and well attended forum discussion on the topic of "Reports to Management—Why, When, What, How?" preceded the regular meeting of the Purchasing Agents Association of New York at the Builders' Exchange Club, 2 Park Ave., New York City, on April 15th.

Albert J. Kelly, assistant purchasing agent, Standard Oil Co. of New Jersey, Norman O. Aeby, director of purchasing, Johns-Manville Corp., and Harold W. Macintosh, purchasing agent, L. O. Koven & Bro. Inc., each discussed various types of reports rendered to management by the purchasing departments in their respective companies. C. K. Johnson, Irvington Varnish & Insulation Co., presided and introduced the speakers.

Mr. Kelly, speaking first, stated that in general a large company will require more reports than a small company. However, he emphasized that regardless of the company's size, the purchasing department should submit reports. "If we don't give management some idea of our operations", he said, "we can't blame them if they do not have a good opinion of our function". He also pointed out that in periods of prosperity management generally requires fewer reports than when confronted with adverse business conditions, at which time management asks for more reports as it is anxious to keep in close touch with developments.

In reviewing the reports prepared by the purchasing department in his company, he placed them into two categories. First there are those reports which management asks for and requires. These he termed mandatory reports. Secondly there are those reports which the purchasing department prepares voluntarily and submits to management on its own initiative. These are the voluntary reports.

Mandatory Reports

In his discussion of mandatory reports he outlined a number of the reports which management requires from purchasing. The administrative report, for example, outlines the purchasing department's budget request, including salary projects, expenses for running the department, supplies, etc.

He described the annual report as being the most detailed and the most important of the reports prepared by his department. This report may be five or six pages long, he said and includes data on business carried on during the year and provides a breakdown into six classifications of purchases made. Also included is a comparison with the previous five years' performance which reflects the volume of business by years, expenses, and the number of personnel in the department. A page is devoted to information on market conditions, price trends, etc., based on items used in the company's operations. Management also

(Please turn to page 220)

Purchasing's Part in Management



Left to right: Norbert F. Sherman, George B. Travis, President A. V. Hawkins of the Washington Association, James Scammahorn, and Clifton E. Mack.

Purchasing's Part in Management was the theme of an open forum discussion at dinner meeting of the Purchasing Agents Association of Washington, D. C., at the Mayflower Hotel on March 11th. The subject, which prompted a lively discussion among the members, was presented by a panel consisting of George B. Travis, director of round table discussions on business matters, Society for the Advancement of Management; James Scammahorn, Assistant Director of Finance, U. S. Department of Agriculture; and Norbert F. Sherman, representative of the Washington Board of

Trade. The panel was arranged by Clifton E. Mack, Director of the Federal Bureau of Supply, and chairman of the Washington association's educational committee.

Russell Forbes, consultant, Bureau of Federal Supply, and Ray Ward of the Federal Bureau of the Budget were invited guests.

The association's educational meetings are conducted on the fourth Monday of each month.

R. M. Brennan, member of the Board of Directors, was named N.A.P.A. Convention Chairman.

District Council Meeting at Memphis



Left, going back: C. M. Cates, Memphis; M. A. Stepherson, Jr., Memphis; Spence Flinn, Chattanooga, Tenn.; Harlan Cross, Birmingham, Ala.; Albert E. Loeffler, Louisville, Ky.; B. L. Hand, Memphis, and Clark D. Thornton, Memphis.

Top table: T. M. Brown, Chattanooga; W. E. Rier, Memphis, new vice president, Seventh District; J. E. Clark, Atlanta, Ga.; Robert N. Dowling, New Orleans, La.; James Pidgeon, president of the Memphis association. Continuing down, right: Martin Sunderland, Memphis; Preston Allen, Memphis; Edgar McCullough, Louisville; Hout Prater, Birmingham; B. B. Jones, Birmingham; Otis Smith, Memphis.

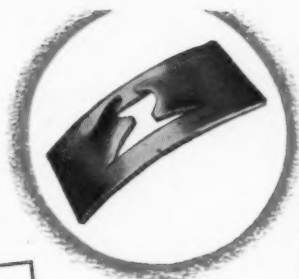
Prof. C. S. Brown, professor of Economics, Memphis State College, concluded his lecture on "International Trade" at the March 19th meeting of the Purchasing Agents Association of Memphis, Tenn. This was a continuation of a discussion begun by Prof. Brown at the association's February meeting. The lecture on "International Trade" was followed by a round table discussion of the Tennessee

Sales Tax. A nominating committee was appointed to select the officers to be elected at the May meeting. Three new members were welcomed into the association.

The Memphis Association was host to visiting delegates at meeting of the Seventh District Council in the Hotel Peabody, Memphis, on March 29th,

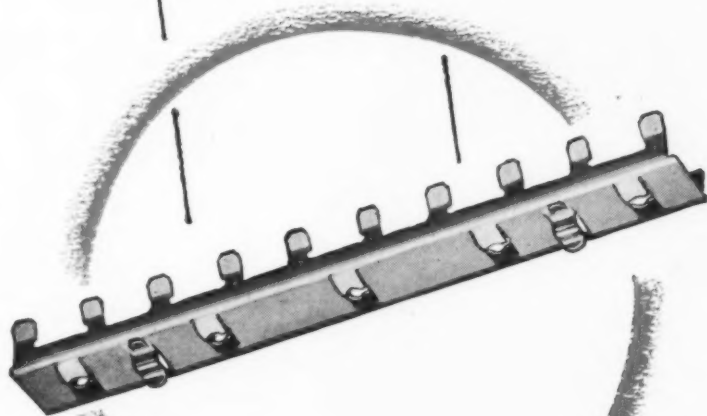
(Please turn to page 230)

THIS

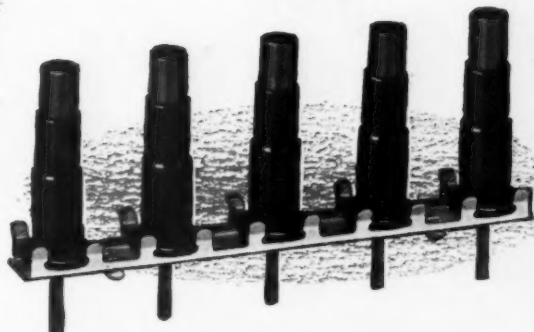
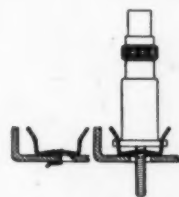


IS A SPEED NUT

and



THIS *is also a*
SPEED NUT



It looks more like a caterpillar than a nut, doesn't it? But a nut it is . . . or rather, five SPEED NUTS combined into one, to simplify and improve the assembly of multiple coil forms on radios.

This one ingenious fastener replaced eight separate parts formerly used and eliminated expensive drilling and tapping operations. It retains the tuning cores and screws, provides exactly the right tension on the screws, and its spring arms hold the plastic coil tubes securely in place.

This is just one example of hundreds where the basic SPEED NUT principle is applied to

develop a special fastener for better, more economical assembly. SPEED NUT brand fasteners may be the answer to your quest for lower assembly costs, so be sure to investigate these streamlined fastening devices. Write us today, including engineering details, and we'll give you a complete, no-charge analysis.

TINNERMAN PRODUCTS, INC.,
2050 FULTON ROAD • CLEVELAND, OHIO

In Canada: Wallace Barnes Co., Ltd., Hamilton, Ontario
In England: Simmonds Aerocessories, Ltd., London
In France: Aerocessoires Simmonds, S. A., Paris
In Australia: Aerocessories, Pty. Ltd., Melbourne

Speed

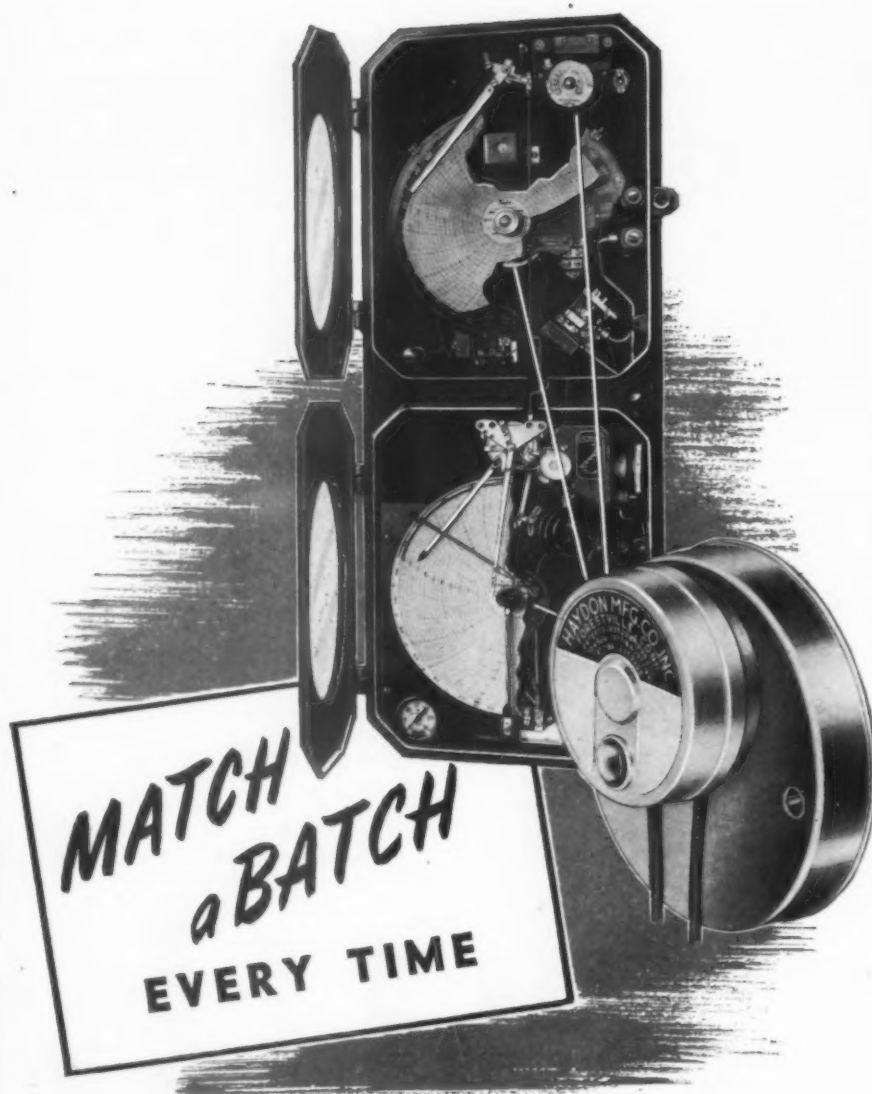
Nuts[★]
PATENTED

MORE THAN 4000

SHAPES AND SIZES

*Trade Mark Reg. U. S. Pat. Off.

F A S T E S T T H I N G I N F A S T E N I N G S



Textile, rubber, food, chemical, paper and petroleum industries are depending upon Taylor Time Schedule Controllers for complex batch processing . . . high-quality and economical production involving time with temperature, pressure, flow or liquid level.

To match a batch, three Haydon timing motors (two chart drives and one interrupter timer) are employed in the Taylor Schedule Controller. The Controller carries through a prescribed time interval and concludes automatically. During the process cycle, auxiliary devices are precisely synchronized and the controller resets itself for consistent and dependable production. This and many other Haydon applications are accounting for greater timing accuracies throughout industry. If it's about time, rely on Haydon in Forestville, Connecticut to deliver. Write for free engineering catalog.

Haydon 2200 Forest Street, Forestville, Connecticut.

HAYDON

MANUFACTURING COMPANY, INC.

FORESTVILLE



CONNECTICUT

HARNESS TIME TO

YOUR PRODUCTS

SUBSIDIARY OF GENERAL TIME INSTRUMENTS CORPORATION

The Program Chairman

(Continued from page 212)

get the meat of the occasion. Meeting attendance with a pre-meeting program is likely to suffer.

Member participation in discussion with a group of 100 or less can be stimulated by adroit questioning during the regular meeting by the presiding officer or by having someone with exceptional ability lead a discussion or opinion-expressing session as part of the pre-arranged program. Many a shy retiring member will blossom out with practical, worthwhile expressions and experiences under the skillful prodding of an able leader. Much good can be accomplished from such sessions. Usually ten to twenty minutes will bring out salient points giving all who desire a chance to express their opinions. It is well, at such times to cover many fields of endeavor and to be careful to avoid "repeaters" at subsequent meetings. Acoustics is a problem in many dining halls that often precludes such activity in large gatherings.

Many years ago, in the Twin City Association, some members were prone to "take a walk" when the speaker was about to be introduced. Such thoughtless discourtesy was embarrassing to many, and effective ways of discouraging it were introduced. Now a membership attendance slip is signed by all, guests included, and a dime collected from each member with the slips. In this way the Secretary has a positive check of attendance and the association has an extra fund of anywhere from \$7.50 to \$10.00. This money is distributed to two or three members at a drawing which is the last thing on the program. *Members must be present to win.*

The Important Part

The really important part of the evening's session is the *information* part of the program. Here is the test of the program committee because an association can rise or fall on the ability and determination of the Program Committee to obtain good, interesting and informative speakers on live subjects.

Several years ago our program committee was subdivided with a general chairman for the year, and a sub-chairman for each meeting. One individual was placed in charge of each meeting and told about it at the beginning of the year. It was then his responsibility to see that his program was outstanding. Such rivalry has produced some great programs.

It is well to plan a year ahead in this way, but it is also vital that the schedule remain flexible enough to take advantage of special opportunities or conditions that might be of spot interest. As an example take the April meeting of the Twin City Association. The general subject was Transportation. Northwest Airlines (a member) is now completing services to the Orient via Alaska from the Twin Cities. They were asked to produce a program based on their survey flights, and delivered in great style with photos, talks and souvenirs!

(Please turn to page 218)

Doc PAX

Loosens Up A 5 O'Clock Jam

Paxlanosav Heavy Duty Granulated Skin Cleanser Super-Cleans The Dirtiest Hands Extra Fast, Yet Is Safe And Thorough

I can't keep the men on the job until quitting time. They're griping about the 5 o'clock jam in the washrooms.

Z??!X?! Let's go see for ourselves.

See what I mean! We lose more darn workers that way.

We can't build extra washrooms now. I'll call Doc Pax.

OUT

REST ROOM

IN

Five o'clock jam—Phooey! Why don't they use Pax.

This will help solve your problems, Joe. Pax Heavy Duty gets hands clean faster. It's plenty safe and economical too.

Now you won't have to worry. Pax Heavy Duty will up production too by helping to keep their hands in better condition.

Boy! I sure like this Pax Heavy Duty. That punch press grime disappears in a jiffy.

Yeah! No more dirty drycracked hands for me. My hands look like I play Bridge for a living.

PAXLANOSAV* HEAVY DUTY GRANULATED SKIN CLEANSER

For ALL General Skin Cleansing Needs

ADVERTISED
IN
AMERICAN MEDICAL
ASSOCIATION
PUBLICATIONS

Paxlanosav Heavy Duty is a natural skin color to prevent substitution of inferior cleansers and to safeguard against the accidental use of harmful products intended for other purposes. Its Natural Skin Color Protects Against Substitutes.



*PAXLANOSAV
a "plus" blend of
emollients
including lanolin

PAXLANOSAV HEAVY DUTY EQUALS OR EXCEEDS EVERY RECOMMENDED STANDARD FOR SAFE INDUSTRIAL SKIN CLEANSERS

It's Fast!

Scientific formulation assures that all the ingredients will work together efficiently to get rid of the dirt quicker.

It's Safe!

Paxlanosav Blended Emollient contains lanolin and several other beneficial oils to help prevent drying, chapping and dermatitis. Pax Heavy Duty has no free caustics and no abrasives.

It's Thorough!

Specially processed sterilized vegetable scrubber plus plenty of creamy quick-rinsing lather routs out all the deep-down grease and grime.

It's Economical!

Healthy hands boost production, cut time lost in first aid rooms. Pax Heavy Duty cuts skin cleanser cost because it's extra-efficient. Convenient cartons prevent waste, save time, store easier.

*TRADENAME OF G. H. PACKWOOD MFG. CO.

PAX

G. H. PACKWOOD MANUFACTURING CO.

1545-55 Tower Grove Avenue
St. Louis 10, Missouri

When you purchase any Pax Product you also purchase the experience and ability of Pax Technicians acquired through 21 years of exhaustive research and development.

For workers in occupations requiring contact with severe skin-defatting solvents, one extra dispenser may be installed in the wash room if desired for PAX Sulphonated Oil Skin Cleanser, which contains lanolin, to finish the wash after PAXlanosav Heavy Duty Granulated Skin Cleanser has been used to safely and thoroughly remove all dirt and skin irritants.

HANDEE • TOOL OF 1001 USES

Reg. U.S. Pat. Off.

JACK OF ALL TRADES AND MASTER OF PLENTY

It's quick, it's deft, it's conveniently small, yet the Handee Tool packs a terrific wallop!

Handee is the original, single hand controlled, electrically driven tool — and it's the finest today. It can be used at the bench or carried right to the job. It reaches hard-to-get-at places on machinery, touches up perishable tools, grinds dies, chip breakers on broaches, removes burrs, etc.

Runs at a cool 25,000 r.p.m.
AC or DC. Weighs 12 oz.

Combined with its accessories and exclusive attachments, the Handee Tool performs more operations with greater accuracy than any other portable electric tool at any price.

PRECISION ATTACHMENTS: Fit Handee only. Offhand carving, routing, shaping is exact as to depth of cut, accuracy of line. Indispensable to pattern shop. Set of 6, postpaid, \$7.95.

HANDEE KIT — Strong, compact steel carrying case holds the Handee Tool and a complete assortment of accessories. Postpaid, \$27.50. Handee with 7 accessories only, \$20.50.

**GRINDS • DRILLS • CUTS • SAWS
ROUTS • POLISHES • ENGRAVES
CARVES • SANDS, ETC.**

**IMMEDIATE
DELIVERY
... ORDER NOW!**

CHICAGO ACCESSORIES FIT ANY POWER TOOL



THE MOST COMPLETE LINE AVAILABLE



OVER 500 — ALL FINEST QUALITY

THE RIGHT ONE FOR EVERY JOB!

WRITE FOR 64-PAGE CATALOG

CHICAGO WHEEL & MFG. CO.

1101 West Monroe Street.
Dept. PG, Chicago 7, Illinois

The Program Chairman

(Continued from page 216)

Suggestions for programs should come from the membership. Many know of outstanding speakers in particular industries. Many are members of service clubs and hear good speakers whose ideas can sometimes be expanded into an evening program. In Minneapolis the program chairmen of the many lunch clubs and associations have their own organization and meet at breakfast monthly to exchange ideas. The Minneapolis Council of Civic Clubs (composed of one or two representatives of all service clubs) meets monthly for general discussion and also bulletins information about speakers and programs, past, present and available in the future. This same group—headquartering in the Minneapolis Chamber of Commerce—schedules outstanding visiting speakers and makes them available, usually without charge, to various organizations for their programs.

Many memorable programs are those staged by large corporations able to employ top flight talkers with supporting evidence in the way of charts, slides and talking movies.

Home Talent Valuable

Don't overlook home talent. Many an association has within its own ranks individual specialists, who can express themselves on subjects of interest to all. Such home talent is ordinarily and unfortunately left for emergency use.

Past President's night is a time to honor the old timers. Sometimes a member has become outstanding in his field and a program can be built around his achievement. A new industry, important to the majority of the group, may be coming to town, and furnish the basis for a combination welcome and information program. When a large batch of new members is signed up at one time, part of a program may be planned to introduce them. An executive night furnishes an excuse to bring the big boss and sell him once again and more thoroughly on the value of your association. Sometimes a group of short talks, covering a number of fields can be worked into an evening's routine.

In all of this the program chairman is the key. He it is who has to select, to direct, to integrate. He must remember to keep it short, keep it interesting, keep it informative. He must remember that his members are interested in everything from paper to explosives, from steel to fish hooks, items as many and as varied as there are numbers, but each is eager to learn more about how he can do his own job better. How well the program chairman succeeds determines how well the association succeeds.

Entertainment, music, dancing or other acts can be interspersed with the meal, immediately follow it before getting into the "heavy" part of the evening's program, or can follow the talk. Many speakers prefer to talk early, before the group is seated, and let any entertainment and business follow. Sometimes musical

(Please turn to page 220)

**"YES, YOU CAN
DEPEND ON
CIRCLE [®]
BOLTS"**



● Ask any user of Circle [®] Bolts and Nuts and you'll get the same answer every time . . . "Circle [®] Products are always dependable . . . you can always count on their uniform size and strength." That's why leading manufacturers throughout the industry keep using Circle [®] Fasteners year after year . . . because they know from practical experience that the Circle [®] trademark is a mark of dependable quality.

[®] BUFFALO BOLT COMPANY

NORTH TONAWANDA, N. Y. • SALES OFFICES IN PRINCIPAL CITIES
Export Sales Office: Buffalo International Corp., 50 Church Street, New York City

Economize. WITH POWERS' TEMPERATURE REGULATORS



Use a Powers No. 11 Temperature Indicating Regulator when you want the advantages of an easy-to-read dial thermometer combined with a dependable self-operating regulator. The dial thermometer gives a visual check on the performance of the regulator and makes it easy to adjust for the required operating temperature. Various dials and ranges are available.

Is Easy To Install—because both the thermometer and the regulator operate from the same thermal system—only one tapped opening is required.

Write for Circular 2511

THE POWERS REGULATOR CO.
2792 Greenview Avenue, Chicago 14, Illinois
231 E. 46th St., New York 17, N. Y.—Offices
in 47 Cities... See your phone directory.

OVER **50** YEARS
OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

The Program Chairman

(Continued from page 218)

numbers immediately following a dinner will cover table clearing and dish clatter. Timing such activities can be determined by local conditions.

Each association could with profit conduct at least two entertainment affairs for the benefit of the ladies each year. In our group we have a dinner dance in the winter months and a summer entertainment at a local country club during the early summer.

The best program is that which proceeds at a leisurely pace to a definite objective that is reached before the members become too groggy to recognize it. Let there be plenty of time for visiting, expression of individual ideas, and just good old fashioned getting acquainted. Promote good fellowship so the next day one member can call another for information or help and start his request by first name intimacy. But before the evening is over have something worth while so even the burriest Scotchman among the group will feel he's been well repaid for the time spent at the meeting.

Preparing and carrying out a program for an association is not a one-man job. To be wholly successful it requires the best brains and thought and work of a whole horde of individuals from the President right down to the newest member. All must cooperate for success.

Reports to Management

(Continued from page 214)

requests a semi-annual report of operations under the budget.

The monthly news letter could be termed a condensed form of the semi-annual report. It shows the volume of business handled, the market situation, and important price trends as viewed by the purchasing department. The company requires a monthly letter from every department. These are consolidated into a general monthly news letter, copies of which are sent to each department.

Reports on commitments are required from time to time. The purchasing department also makes out reports of commitments against certain construction projects—in other words a report of values. At the end of the year a report on outstanding commitments is prepared to assist the auditor in auditing the company's finances. There are also occasional special reports, covering details or phases of operations not covered in the regular reports. These may pertain to special situations with regard to specific commodities, etc., and may be requested by management as the need arrives.

Voluntary Reports

Mr. Kelly then outlined some of the voluntary reports that the purchasing department prepares. Reports may be submitted, he pointed out, on negotiated contracts. In these reports the department lists all contracts, giving complete information on the essential portions

(Please turn to page 224)



HORCO Fabrics

CUSTOM MADE To Your REQUIREMENTS

If you require coated fabrics for specific applications, Hodgman will engineer them for you.

Such valuable properties as great flexibility, light weight, unusual toughness, resistance to stains, abrasion, extremes of temperature, and protection against moisture, deterioration and many chemical agents can be built to order in Horco Fabrics. Hodgman's laboratory facilities and expert engineering service are available to you. Your inquiries are solicited.

HODGMAN RUBBER CO.
Framingham, Mass.



BEALL
Spring WASHERS

Bolted assemblies stay TIGHT permanently

BEALL SPRING WASHERS, with live, long-range action compensate for ALL causes of looseness including vibration, bolt stretch, wear, rust and break-down of finish under the nut and bolt head.

IN STOCK in all Standard Sizes; made of Carbon Steel, Stainless Steel, Everdur and Duranox.

BEALL TOOL DIVISION (HUBBARD & CO.)
160 Shamrock St. EAST ALTON, ILL.

WEIRTON

COLD-ROLLED SHEETS



A SOUND FOUNDATION FOR SOUND VALUES

For those values that are more than skin-deep—the values that underlie the exterior finish of a manufactured product—there can be no better foundation than Weirton cold-rolled low-carbon steel. Because of uniformly good quality and finish, Weirton sheets are highly esteemed by manufacturers who seek to attain sound value in their products.

WEIRTON STEEL CO.

WEIRTON, W. VA. Sales Offices in Principal Cities
Division of NATIONAL STEEL CORP. Executive Offices, Pittsburgh, Pa.



YOU FURNISH THE STEEL LYON will make the product

• Here's how you can speed up plant expansion, boost production, or turn surplus steel inventory into cash:

- (1) If you can supply us with 12 to 24 gauge sheet steel, we will supply you pound for pound with any selection of Lyon standard products now in production.
- (2) We will manufacture to your specifications, in Lyon production run quantities, assemblies, sub-assemblies or parts in gauges No. 8 and lighter up to No. 30. Write or phone your nearest Lyon dealer or district office.



STANDARD LYON PRODUCTS



KITCHEN
CABINETS



BENCHES



LOCKERS



FILING CABINETS



GRAVITY
CONVEYORS

CONTRACT PRODUCTION OF SHEET STEEL ITEMS



ELECTRICAL
CONTROL UNITS



HOME
APPLIANCE STANDS



SPECIAL PARTS

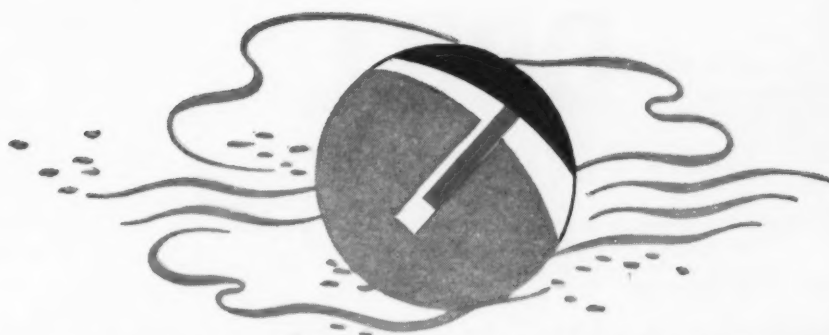
LYON

METAL PRODUCTS, INCORPORATED

GENERAL OFFICES: 633 MONROE AVENUE, AURORA, ILLINOIS
Branches and Dealers in All Principal Cities

A PARTIAL LIST OF LYON PRODUCTS

- | | | | | | | |
|------------------------|---------------------|-------------------|--------------------|--------------|-----------------|---------------------------|
| • Shelving | • Kitchen Cabinets | • Filing Cabinets | • Storage Cabinets | • Conveyors | • Tool Stands | • Flat Drawer Files |
| • Lockers | • Display Equipment | • Cabinet Benches | • Bench Drawers | • Shop Boxes | • Service Carts | • Tool Trays • Tool Boxes |
| • Wood Working Benches | • Hanging Cabinets | • Folding Chairs | • Work Benches | • Bar Racks | • Hopper Bins | • Desks • Sorting Files |
| • Economy Locker Racks | • Welding Benches | • Drawing Tables | • Drawer Units | • Bin Units | • Parts Cases | • Stools • Ironing Tables |



A Fist Full of HORSEPOWER ... in the New Explosion-Proof Gast Air Motor

A mere fist full, but there's plenty of power in this new *explosion-proof* Gast Air Motor that operates with compressed air. It weighs only $2\frac{1}{2}$ pounds and is $2\frac{1}{4}$ inches in diameter, but it delivers up to $\frac{1}{8}$ horsepower. It will start in any position and run under constant low speeds without stalling. Speed is variable from 0 to 6,000 r. p. m. Like other Gast Air Motors, the design is utter simplicity. There are few moving parts, practically nothing to wear out and the initial cost is low... service cost, rarely any. It can never burn-out, even when heavily overloaded and it cannot spark, it meets all explosion-proof safety requirements. There are two other sizes available for heavier loads; one develops up to $\frac{1}{2}$ horsepower, the other up to 1 horsepower. Both incorporate all of the outstanding features of the new "fist full" size. All are completely described in the new Gast Catalog.

GAST MFG. CORP.
150 Hinkley Street
Benton Harbor, Michigan



Vanes: Self-seating... self-adjusting... springless. Centrifugal force holds them against cylinder wall. They "work without works" ... Continuous, non-pulsating flow... More

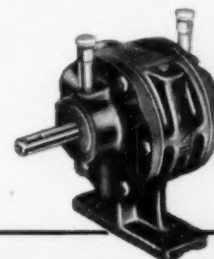
power per lb. of weight controlled, absolute speed... Long life, oil economy, no hot oil odor... Automatic shaft seal; no packing, no leaking and no adjusting.

GAST

ROTARY

ENGINEERING TEST OFFER .. So You Can SEE IF YOU'RE MISSING SOMETHING!

Simply write our Engineering Department and explain the operation you think air might handle, or describe the job air is already doing for you. Our Engineering Department will study your problem, select or design a Gast unit to do the specified work at less cost or at greater efficiency or both. Then, without cost or obligation, the recommended unit will be shipped to you for your performance tests.



GET THIS IDEA-CATALOG



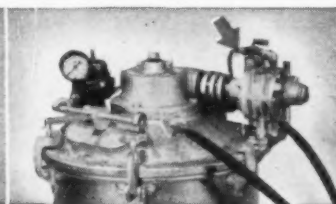
It not only tells how Gasts are built and all about them, but suggests uses that may not have occurred to you. Write for it; no charge or obligation!

2306

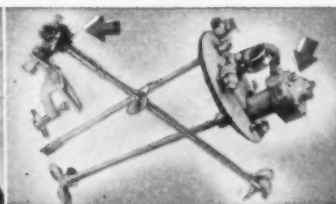
VACUUM PUMPS · AIR COMPRESSORS · AIR MOTORS



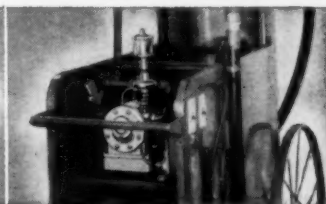
A Gast Air Motor on a Portable Mixer.



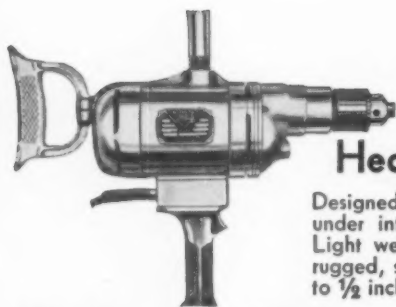
Gast Equipment on a Spray Outfit.



Gast Air Motors on Portable Agitators.



Gast Vacuum Pump in a Sump Cleaner.



DRILL

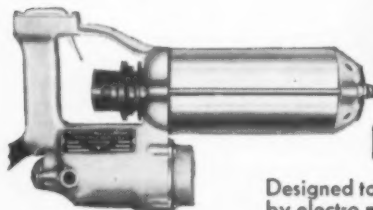
Heavy Duty Electric Drill

Designed to give dependable performance and long life under intermittent or continuous heavy duty operation. Light weight, speedy, and durable it is powered by a rugged, smooth-running Universal motor. Drills holes up to $\frac{1}{2}$ inch in steel.

DRIVE

Screw Driver and Nut Runner

Designed to give extreme flexibility, velvet smoothness and greater load capacity through the new adjustomatic clutch. Driven by powerful, cool-running Universal motor, it drives wood screws up to Number 10, machine screws and bolts up to Number 12.



HAMMER

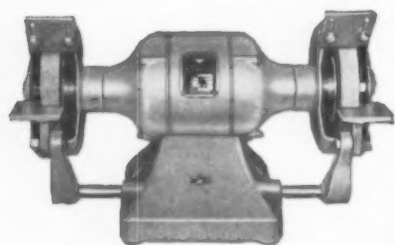
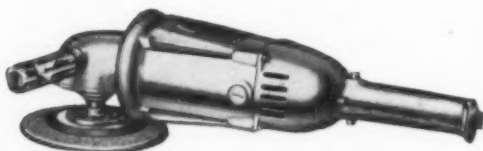
Heavy Duty Electric Hammer

Designed to deliver 3600 powerful blows per minute. Actuated by electro magnets there are no motors, gears, shafts, or bearings to deteriorate under constant vibration. Drills seasoned concrete at rate of 1 inch to 2 inches per minute depending on hardness of material.

SAND

Portable Disc Sander

Designed and powered for sanding, grinding, polishing, wire brushing, stone surfacing and cup grinding on large working areas of wood or metal — wherever large 9 inch disc diameter and high peripheral speed mean economy. All moving parts mounted on grease-sealed ball bearings.



GRIND

Heavy Duty Grinder

Designed to start quickly, operate smoothly under continuous heavy loads. Super-powered, precision-balanced motor and oversize labyrinth-sealed ball bearings mean low cost, steady, heavy duty service. Knee action tool rest for straight or angle grinding.

Better — Faster — at Lower Cost

with these light weight, compact, easy-to-use Millers Falls electric tools. Each has proved its ability to give dependable service and long life on a wide variety of jobs. Write for complete information.

One thing in Common — QUALITY!

MILLERS FALLS COMPANY
Greenfield, Massachusetts



Reports to Management

(Continued from page 220)

thereof, such as prices paid, terms and other conditions. Copies are sent to other departments or company plants which might be interested in such data.

A report on price and delivery information is also compiled. This covers approximately 55 of the principal commodities purchased by the company. It includes short paragraphs on the general price situation, lists the important commodities and shows the lead time required for delivery. He described this report as being very beneficial in that it serves to keep the requisitioning sources informed on developments and progress of their orders, and also helps them to better regulate their inventory and anticipate requirements.

During the war, he said, the purchasing department prepared reports on government regulations affecting procurement. Some of these, as in the case of export control, and especially where changes are likely to take place, are still issued. Information on deliveries is also provided by the purchasing department. Delivery information reports may be made up on individual orders or in the form of monthly or semi-monthly reports, as may be done in the event of special projects. Commission statements are prepared for the information of the accounting department; and a consolidated report of purchases from various suppliers is compiled for the sales department.

"The reports that we are called upon to render", he concluded, "are not many considering the size of our operation. They are of considerable assistance to us. Some of them may not be of very much value when we have already performed the work, at the same time they give us a good gauge on what we have been doing and what our performance is."

Brevity and Conciseness Essential

Norman O. Aeby was the next speaker. In his talk he emphasized the necessity of conciseness and brevity in all reports, stating that top management does not have the time to thoroughly read lengthy and ponderous reports. In discussing the reports prepared by the purchasing department in his company, he divided them into two groups. The first comprises the routine reports, which he described as being familiar to all purchasing agents. These have to do with the purchasing department, inventory control, trends, etc. The second category consists of the special reports made at the request of top management, or initiated by the purchasing department. "When we see something of the utmost importance, and where we can make a good showing, we make reports voluntarily", he declared.

Among the routine reports rendered by the purchasing department is one that is made for the controller whenever sizeable changes in prices occur, particularly those which may affect sales costs. The factory operating departments report weekly on supplies and

(Please turn to page 226)

Motors Standardized?

**Maintenance men
say, "NO!"**

WIDELY experienced electrical equipment maintenance men know that motor standardization stops with mounting dimensions . . . that motors are far from standardized in their ability to stand up under trying jobs.

They know, for example, that *Fairbanks-Morse motors* have an exclusive combination of features that add up to extra stamina: Prewound stators with long-lived insulation. Indestructible Copperspun rotors. Crossflow ventilation that bans hot spots. Protection in any mounting position from falling objects and dripping liquids.

For full information on motors that boost production and cut power costs, write Fairbanks, Morse & Co., Chicago 5, Illinois.

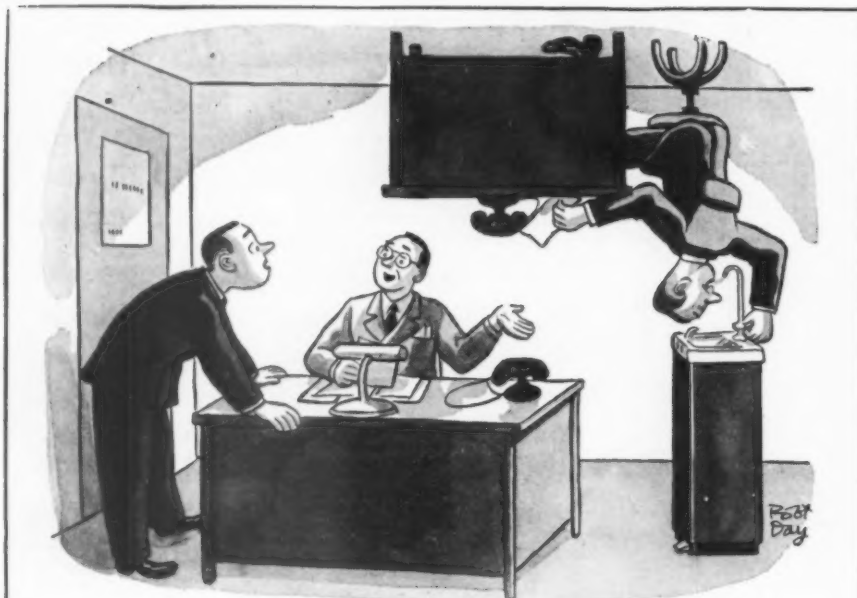


Fairbanks-Morse



A name worth remembering

Diesel Locomotives • Diesel
Engines • Generators • Motors
Pumps • Stokers • Magnetos
Scales • Railroad Motor Cars and
Standpipes • Farm Equipment



"He said he'd turn the office upside down to get a seat near the General Electric Water Cooler."

For a lot more smiles from your employees, install General Electric Water Coolers. They cost only 2¢ a day to operate in the average office. You'll get full

information from your General Electric Dealer. Call today. General Electric Company, Air Conditioning Department, Section 7296, Bloomfield, N. J.

GENERAL ELECTRIC
Water Coolers

PACKING IS A BROAD CLASSIFICATION

If your approach to it is along scientific lines, you will wish to contact and use the services of our Creative Design Dept.

Information on the right type of package, its advantages in design — in construction — in low costs — in permanency, etc., will be quickly furnished for your consideration.

The Cleveland Container Company, with over twenty years of experience in this field, merits your inquiries . . . gives quick and intelligent service in furnishing the data you desire.

Besides the Packaging products mentioned here, we manufacture COSMALITE in the Electronic field, Plastic products in the toy and novelty field.

Quality Products . . . rightly priced . . . rapidly produced. May we serve you?

Take Advantage

of Successful
Know How!



The CLEVELAND CONTAINER Co.
6201 BARBERTON AVENUE CLEVELAND 2, OHIO

PRODUCTION PLANTS also at Plymouth, Wisc., Ogdensburg, N. Y., Chicago, Ill., Detroit, Mich., Jamesburg, N. J.
PLASTICS DIVISIONS at Plymouth, Wisc., Ogdensburg, N. Y. • ABRASIVE DIVISION at Cleveland, Ohio
New York Sales Office—1186 Broadway, Room 223

IN CANADA—The Cleveland Container Canada Ltd., Prescott, Ontario

Reports to Management

(Continued from page 224)

and stores checks. Details include the opening and closing inventories, the amount used during the past four weeks, and the estimated needs for the forthcoming four week period. These reports serve as guides in the formulating of recommendations by the purchasing department as to inventory policies, for buying, etc.

Special Reports

Various special reports are also prepared. As an example of this he cited the reports occasionally made on the coal and coke situation. This report serves to assist factory locations in planning their inventory policy on these items in the event of anticipated disturbances such as a coal or transportation strike. At factory managers' meetings, such as are held from time to time, the purchasing department has the opportunity to submit a report presenting its problems, showing where purchasing can best help the factory organization and vice versa. Special reports are prepared for top executives. These afford the purchasing department the opportunity to directly bring to top management's attention what problems the purchasing department may be facing, how it has surmounted them, what the department has accomplished, etc. This type of report is compiled in book form and includes charts of the purchasing account, sales, inventory tonnage, a listing of the twelve major commodities purchased, dollar purchases per year in order of importance, in units and dollars. In short it shows where, how and for what the money is spent.

The yearly progress report presents the progress or lack of progress made during the year. It includes information on deliveries, price trends, policies, inspection, substitutions made or recommended and savings effected therefrom. This report is condensed to eight pages and goes into the historical archives of the company as a permanent record.

Value to Purchasing

"The preparation of reports for management by the purchasing department presents the opportunity for doing a fine job on behalf of purchasing. All too often the top executives do not know what we are doing and they cannot well judge the merits of what we are doing except by means of a report," he said.

"I do not recommend making too many reports or too lengthy reports. Too detailed reports are a waste of time. On the other hand I do not believe that you can sell yourself to management by making minor reports that do not mean anything. There are numerous subjects to report on, but I do not believe we should try to make reports on vague things such as the cost of purchase orders. Some orders may cost from \$3.00 to \$5.00, or may take from three to five weeks at a cost of a hundred or even two hundred dollars. On the other hand you may place an order that may represent a tremendous

(Please turn to page 228)



PURITY AND HEALTH...

*Stainless Steel
Guards Them!*

Dairies coast-to-coast gleam with equipment made of Allegheny Metal, the pioneer stainless steel in America. Long experience has proved that stainless steel has no equal as a guarantor of pure, wholesome dairy products and a guardian of delicate natural flavors—while at the same time giving a lifetime of service at rock-bottom cleaning and maintenance costs. That's a combination of properties that makes Allegheny Metal ideal for any application where sanitation, purity and quality of product are major considerations. • If you have a problem of that nature, let us help you to enlist the easy-fabricating qualities and economical service of Allegheny Metal . . .

CALL FOR AN ALLEGHENY LUDLUM ENGINEER.



SALES SERVICE
based on Research
and Development

**ALLEGHENY
LUDLUM**
STEEL CORPORATION
Pittsburgh, Pa.

ALLEGHENY METAL is stocked by all
Joseph T. Ryerson & Son, Inc. warehouses.

W&D 895-B

PIONEER IN SPECIALLOY STEELS

LEA on ALUMINUM

... another
example of a
Lea Finishing Method
doing a
REAL JOB!



Do you have a finishing operation in your production line?

If so you will be interested in the work a Lea Method and Lea Compositions are doing for the General Fireproofing Company, Youngstown, Ohio. It's an effective job, producing a fine satin finish on the aluminum trim of General Fireproofing's extensive

line of office furniture of which the Super-Filer, as illustrated, is typical.

Hundreds, even thousands, of metal, plastic and wood fabricators have turned to LEA for the solution of post-war finishing problems. Many of them were pre-war as well as war-contract customers. They appreciate that Lea Technical Service and Lea Compositions lead the way to better finishes at a lower cost and speed up production.

THE LEA MANUFACTURING CO.

Burring, Buffing and Polishing ... Manufacturers and Specialists in the Development of Production Methods and Compositions

16 CHERRY AVENUE • WATERBURY 86, CONNECTICUT

Reports to Management

(Continued from page 226)

amount in a very short time with very little cost. The cost of an order therefore does not reflect the efficiency of a purchasing department."

Weekly Meetings Held

Harold W. MacIntosh described how in his company a weekly management committee meeting is usually held. At this meeting the various departments have the opportunity to present reports and bring up for discussion problems or questions of current interest. As his is a smaller company, he stated, the purchasing agent is in daily contact with the president and other members of management.

He described how since becoming a member of the company's board of directors he has instigated the preparation of a report by the purchasing department for delivery at the annual board of directors meeting. He listed the following points as being covered in this yearly report:

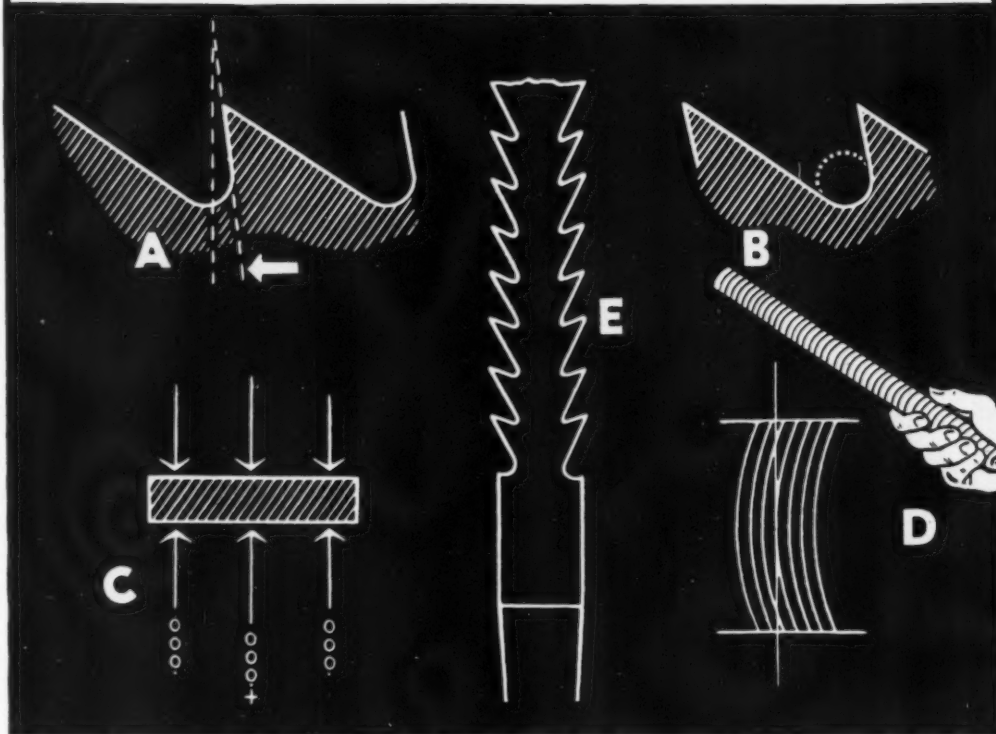
1. Personnel of the purchasing department — what it consists of.
2. What the control division consists of.
3. Details on the budget — whether it was adhered to or not.
4. Procurement problems encountered during the year.
5. A listing of the major items purchased.
6. Substitutions and savings effected therefrom; if in collaboration with another department such is indicated.
7. Resume of the year's price situation as seen by the purchasing department.
8. Equipment — what has been purchased, for what purpose, and in what quantity.
9. A report on tonnage of scrap sold and how much has been obtained from such sales or scrap and surplus materials.
10. An outline of the materials situation on both the company's plans, and a comparison of the situation in each.
11. Activities participated in by members of the purchasing department, such as membership in the NAPA, part taken in association activities, etc.
12. Resume of the amount of paper work carried on by the purchasing department in the course of the year's activities, the number of purchase orders issued, and so forth.
13. Activities of the stores control division and a breakdown of each individual's duties.

In the general discussion that followed Mr. Aeby again emphasized the point that purchasing should not only tell management what it is entitled to know, but also what it should know from the purchasing department's viewpoint.

"If you don't know enough to blow your own horn — in a moderate way — that's your lookout," declared Mr. MacIntosh, adding that "the sales department, or some other department, might very well get credit for a saving or accomplishment really effected by purchasing." In conclusion Mr. Aeby again stressed

(Please turn to page 230)

POP'S SCHOOL of FILING



"Little things make big differences in curved tooth files"—says Pop the Foreman

• The right file for the job means selecting both the right type and the best design in that type . . . especially in milled curved tooth files — as the technical distinctions in Pop's "lesson for today" indicate.

Nicholson Superior Curved Tooth Files are made as only Nicholson standards of design and workmanship can assure:

- (A) Teeth have the proper face angle (positive) for good bite without pinning up.
- (B) Gullets are carefully designed and smoothly rounded for minimum clogging.
- (C) Cross-section has very slight fullness for even tooth wear and level cutting under normal filing pressures.
- (D) Tooth radius is designed to keep two or more teeth always in contact, to eliminate

chatter with any plane-surface work. Greater shear angle at edges results in smooth cutting with less pressure, less clogging.

(E) Pre-forged tang, with teeth stopped off leaving a clean shoulder below level of teeth-tops, insures strength and allows file to be used as surfacing tool.

Tremendous trifles! Yes, details which, cumulatively, can effect big mass-production savings in man-hour costs — and in file costs as well! In NICHOLSON SUPERIOR brand your industrial distributor can offer you curved tooth files that are really superior.

TANGED type (rigid) illustrated. Also made in flexible **BLADE** type. For non-hard ferrous metals and alloys; aluminum, brass, babbitt, plastics, hard rubber, wood, etc.

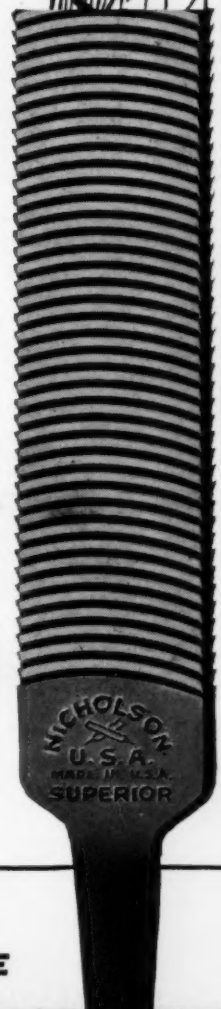
NICHOLSON
U.S.A.

NICHOLSON FILE CO. • 28 ACORN ST., PROVIDENCE 1, RHODE ISLAND
(In Canada, Port Hope, Ont.)

BLACK DIAMOND
TRADE MARK

NICHOLSON FILES

FOR EVERY PURPOSE



GRAY IRON CASTINGS

S. A. E. OR A. S. T. M.
CLASSES 20-30-40

2 FOUNDRIES

on 2 main line railroads

equipped for fast, efficient production to meet your casting requirements.

Special facilities for rollover and cope-and-drag production to 150 pounds. Other castings up to 1000 pounds.

Send us your inquiries or ask for a representative to call to discuss your casting requirements.

Compressor Unit



Intake Manifold
with Heater Body



**TYPICAL
FOREST CITY
CASTINGS**
(untouched photos)



Gas Meter Valve Plate

**THE
FOREST CITY
FOUNDRIES
COMPANY**

2500 WEST 27TH STREET
CLEVELAND 13, OHIO
Phone PRospect 5040

Reports to Management

(Continued from page 228)

the value of reports, ranging from detailed formal reports to short one paragraph memos.

After the dinner meeting that followed the forum discussion, Stuart F. Heinritz, editor of *PURCHASING* Magazine, spoke on the changes that are taking place in the transition from a sellers' to a buyers' market and the changing attitudes both from the sellers' and buyers' viewpoints that are being brought about.

1 1 1

Council Meeting At Memphis

(Continued from page 214)

which was attended by representatives from Chattanooga, Louisville, New Orleans, Alabama, Florida, and Georgia.

W. E. Rier, Rotary Lift Company, Memphis, was unopposed for the post of Seventh District vice president of the N.A.P.A.

1 1 1

STANLEY RINGHEIM ELECTED TO HEAD WASHINGTON ASSOCIATION

Stanley E. Ringheim, Crown-Zellerbach Corp., was elected president of the Purchasing Agents Association of Washington at the April 10th meeting in Seattle. In addition to being election night, the meeting was also designated Past Presidents' Night. Approximately 156 members and guests were present. Included among the guests was R. E. Weador, national director, Purchasing Agents Association of Springfield, Ohio, who spoke briefly on the activities of his association.

Following the election of officers and the introduction of seven new members the meeting was turned over to the past presidents. M. F. McClane, acting as master of ceremonies, read off the names of those men who have served the association as president and introduced the 16 past presidents who were on hand. An original play written by LeNore Wartes, of the Women's Group of the Washington Association, and directed by M. F. McClane, with an all-past-president cast, was presented.

On May 8 the officers elected at the April meeting were officially installed. These included: Stanley E. Ringheim, Crown-Zellerbach Corp., president; Kenneth A. Knudson, Everett Pulp & Paper Co., first vice president; Frank C. Bergmann, Pacific Coast Co., second vice president; Russell Wetherell, Olympic Foundry Co., secretary, and R. Guy Frederick, Monsanto Chemical Co., Western Division, national director. W. R. Lindersmith, treasurer-elect, resigned; and another election to chose his successor was scheduled.

Leonard Koepf, manager of the mechanical goods department, U. S. Rubber Co., Seattle, spoke on "Synthetic rubber as applied to Industry." Following his talk a travelogue sound film entitled

(Please turn to page 232)

What type of STAINLESS FASTENER do you need?



**Allmetal has it —
or can make it!**

**Prompt delivery from the
largest stock in the nation!**

Screws . . . nuts . . . washers . . . pins . . . Allmetal carries the largest stock in the country of stainless steel fasteners and screw machine parts. We also have facilities for heading, tapping, drilling, reaming, slotting, turning, stamping, broaching and centerless grinding . . . and we work not only with stainless and monel, but also with duralumin, aluminum, brass, bronze, or any other non-corrosive metal. All parts produced to close tolerances. Write for our catalog today. Allmetal Screw Products Co., Inc., 33 Greene St., New York, 13.

**Send for
FREE CATALOG**



This new, 83-page catalog helps you select the correct size and type of non-corrosive fastening device for any particular job. Includes stock sizes, specials that can be made, engineering data, etc. Make request on company letterhead.

Write to
Department PG

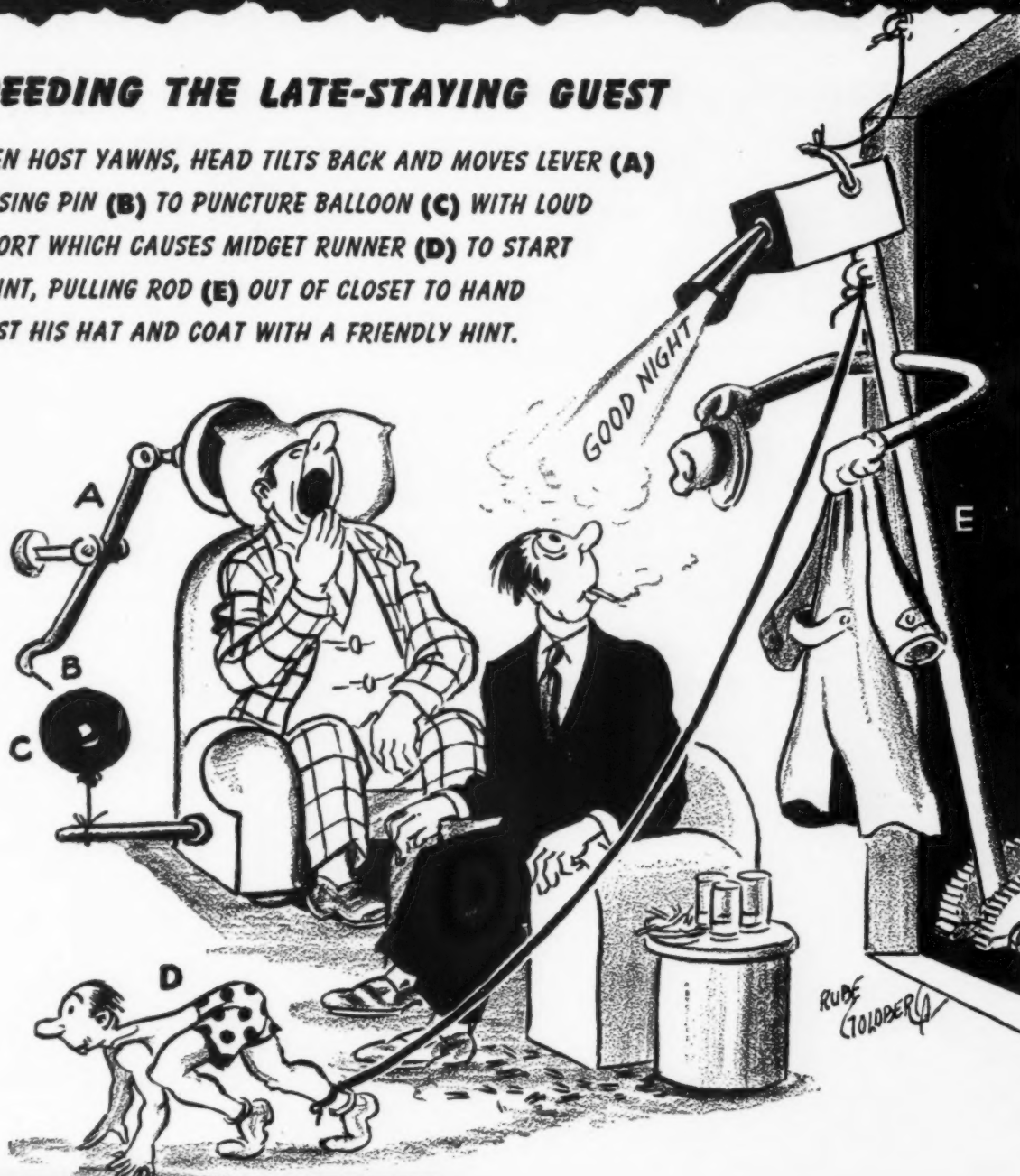
**ALLMETAL
SCREW PRODUCTS CO., INC.**
33 Greene Street, New York 13

**SPECIALISTS in
STAINLESS FASTENERS**

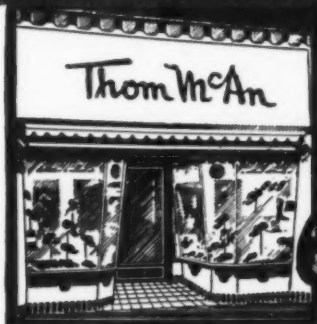
One Way To Do It! — by RUBE GOLDBERG

SPEEDING THE LATE-STAYING GUEST

WHEN HOST YAWNS, HEAD TILTS BACK AND MOVES LEVER (A) CAUSING PIN (B) TO PUNCTURE BALLOON (C) WITH LOUD REPORT WHICH CAUSES MIDGET RUNNER (D) TO START SPRINT, PULLING ROD (E) OUT OF CLOSET TO HAND GUEST HIS HAT AND COAT WITH A FRIENDLY HINT.



MAKE THIS STORE YOUR SAFETY SHOE DEPT.



More than 500 stores in over 300 cities.



SAFETY SHOE DIVISION
25 W. 43 ST., NEW YORK 18, N. Y.

ONE WAY to approach the foot safety problem in your plant is to provide Safety Shoes of some brand that your men don't know—or perhaps don't like.

THE EASY WAY is to select Thom McAns, "the Safety Shoes that workers wear WILLINGLY"—because they already know and trust the Thom McAn name.*

THE EASIEST WAY OF ALL—"LET THEM DO IT"
Let us stock our Safety Shoes for you in our own Thom McAn retail stores, fit them with our own trained fitters, without cost or obligation on your part. You, freed of "shoe store problems," can concentrate on more important things, make yourself a more valuable man. Proof? Details? Write for them—today.

***MORE MEN** buy their shoes from **Thom McAn** than from **ANY OTHER** shoe store organization **IN AMERICA**

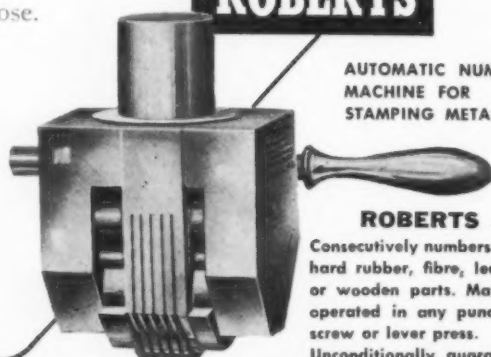
There's one **RIGHT** machine.

for every numbering job.

Over 50 years of experience has given us the "know-how" to solve any problem of numbering—whether it involves a hand, typographic, stamping or embossing operation. Let us advise *you* on your numbering problems. We'll tell you the right machine to use for your particular purpose.



SEND
FOR
CATALOG



ROBERTS

AUTOMATIC NUMBERING
MACHINE FOR
STAMPING METAL

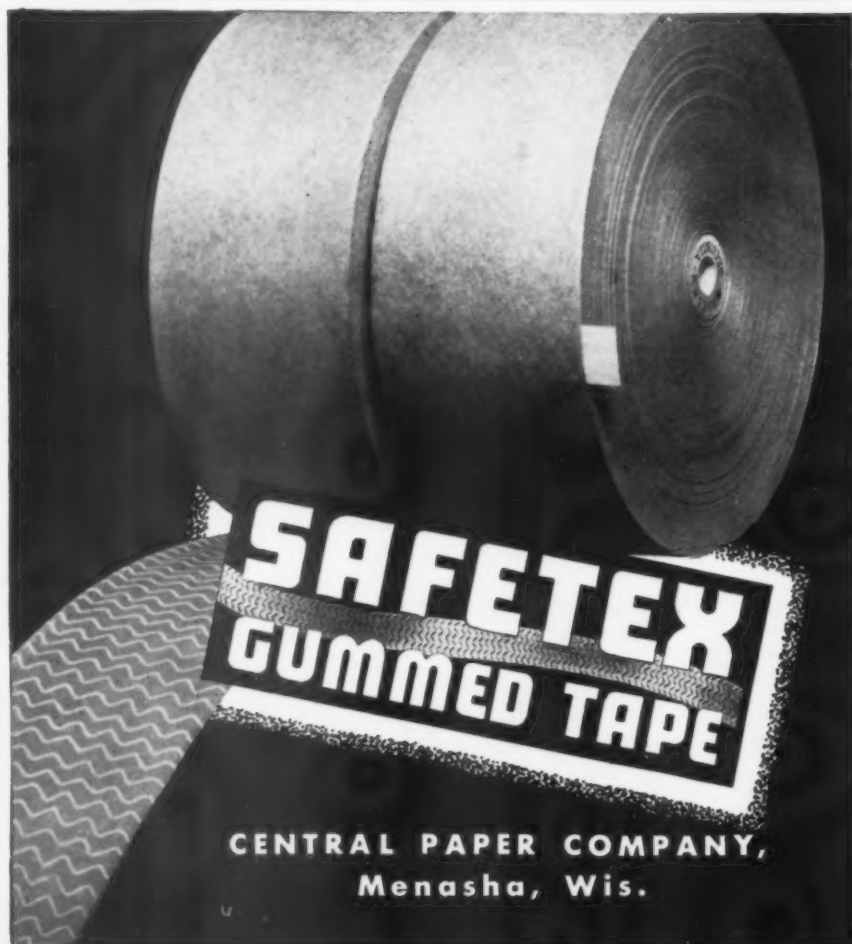
ROBERTS #43

Consecutively numbers all metal, hard rubber, fibre, leather or wooden parts. May be operated in any punch, screw or lever press. Unconditionally guaranteed.

ROBERTS NUMBERING MACHINE CO.

703 JAMAICA AVENUE

BROOKLYN 8, NEW YORK



SAFETEX
GUMMED TAPE

CENTRAL PAPER COMPANY,
Menasha, Wis.

(Continued from page 230)

"East of Bombay" was shown through the courtesy of the U. S. Rubber Co.

The educational forum met at 4:30 pm with Harold R. Mitchell presiding. Dr. Henry A. Burd, professor of Marketing, University of Washington, spoke on "Business Letters."

1 1 1

HEADS EASTERN NEW YORK ASSOCIATION

Harold H. Frair, purchasing agent for the Glens Falls Group of Insurance Companies was elected president at the April meeting of the Purchasing Agents Asso-



H. H. Frair

ciation of Eastern New York at the Mohawk Golf Club in Schenectady. Others elected include: R. H. Van Laer, Hudson Valley Paper Co., vice president; A. R. Cole, Tobin Packing Co., secretary; S. C. Main, National Commercial Bank & Trust Co., treasurer; and W. B. Gardner, Soncony-Vacuum Oil Co., national director.

1 1 1

EASTERN NEW YORK GROUP SEES MOVING PICTURE

A half hour sound and motion picture on pallet packing, stocking and transporting featured the May meeting of the Purchasing Agents Association of Eastern New York held May 15 at the Troy Country Club. The film was prepared and shown by American Transportation Co. Commodity reports on major items were presented before the picture.

1 1 1

BOSTON BANKER ADDRESSES NEW ENGLAND MEETING

Laurence F. Whittemore, president of the Federal Reserve Bank of Boston, addressed the Purchasing Agents Association of New England at the Annual Meeting held in Boston on May 12.

The slate of officers proposed by the nominating committee was voted on and elected. These include: Kendrick Burns, S. D. Warren Co., president; Daniel G. Donovan, Pepperell Mfg. Co., vice president; John R. Fuller, Sylvania Electric Products, Inc., treasurer, and Lloyd A. Lowe, C. H. Sprague & Son Co., national director. H. J. Graham continues as secretary.

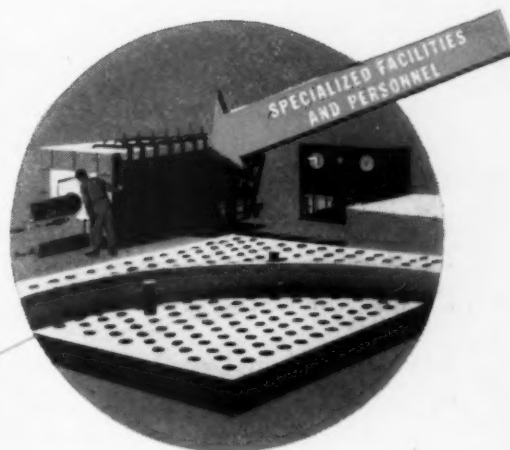
"How to strengthen the relations between the purchasing and engineering departments" was the topic of a table discussion.

(Please turn to page 234)



PREFABRICATED PIPING ASSURES QUALITY AND ECONOMY

- ★ One Source for Design and Fabrication
- ★ Pretested and Approved before Shipment
- ★ Only Completed Assemblies billed -- at Predetermined Prices
- ★ Predetermined but flexible Delivery Schedule
- ★ Reduction in Field Assembly Time



A TYPICAL EXAMPLE OF GRINNELL PIPING SERVICE

COMPLETE . . . EVERYWHERE

Products Manufactured

Pipe and Tube Fittings
Engineered Pipe Hangers
Prefabricated Piping
Grinnell-Saunders Diaphragm Valves
Thermolier Unit Heaters
Job Work Casting
Automatic Sprinklers and Special
Hazard Fire Protection Systems
Amco Humidification and
Cooling Systems
Other Piping Specialties

Supplier of . . .

Pipe, Valves and Fittings
Specialties for Plumbing, Heating,
Water Works and General Piping

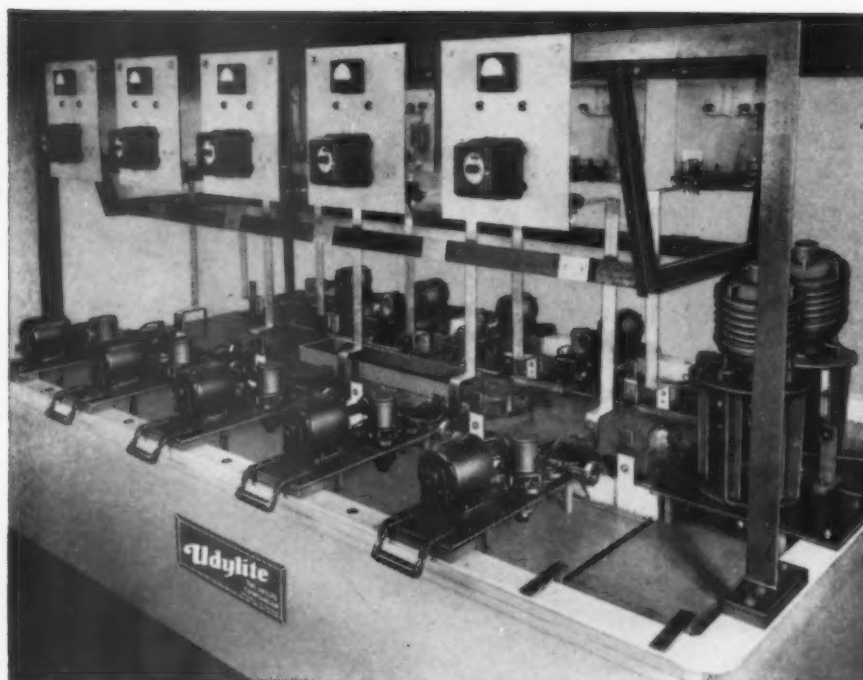


GRINNELL COMPANY, INC.

Executive Offices
PROVIDENCE 1, RHODE ISLAND

GRINNELL

WHENEVER PIPING IS INVOLVED



ELECTROPLATING contributes to the world's great music

Recording of symphonies and other musical compositions for the phonograph has connected the immortal work of Beethoven and Udylite Engineering.

From the original costly wax recording to the multiplicity of record stampers, electroplating performs each of the five steps of duplication. By no other process can extremely fine details be reproduced so accurately. Each step has always required many hours of plating time to secure high fidelity reproducing qualities.

With almost two years of continuous research and experimentation, Udylite produced the plating machine illustrated—the result of a perfect combination of specialized electrical, mechanical and chemical engineering. This machine has not only cut the plating time 80 percent, but produces a better product of greater fidelity. Again, with Udylite the promise is fulfilled.

2682

THE
Udylite
CORPORATION
1451 E. GRAND BLVD. • DETROIT 11, MICH.
REPRESENTATIVES IN ALL PRINCIPAL CITIES

**SEE US AT THE
INDUSTRIAL
FINISHING
EXPOSITION
in DETROIT
IN JUNE**

RALPH KEEFER ADDRESSES VALLEY ASSOCIATION

The principal speaker at the April 22nd meeting of the Valley Purchasing Agents Association, held at the Piccadilly Room of the Tod Hotel in Youngstown, Ohio, was Ralph O. Keefer, general purchasing agent, Aluminum Company of America, Pittsburgh, Pa. He spoke on "Aluminum, Its History and Future". Following his talk a sound movie entitled "This is Aluminum" was presented.

The election of officers also took place at the same meeting. C. E. Tripp, Warren-Winfield Corp., Warren, Ohio, was elected president. M. J. Chapman, Bessemer Limestone & Cement Co., Youngstown, was elected vice president, and Bruce D. Henderson, Westinghouse Electric Corp., New Castle, Pa., and C. R. Wood, Aetna Standard Engineering Co., Youngstown, were elected secretary and treasurer respectively.

1 1 1

DAYTON ASSOCIATION HOLDS PAST PRESIDENTS' NIGHT

The April 10th meeting of the Purchasing Agents Association of Dayton was designated Past Presidents' Night. Past president Lee Bower introduced the past presidents present to the group. The speaker of the evening was Ralph O. Keefer, Aluminum Co. of America, Sixth District vice president, who reported on his activities and suggested more visitation among members of the various local associations.

1 1 1

JOINT BUYERS-SELLERS MEETING HELD BY TULSA ASSOCIATION

A joint buyers and sellers meeting devoted to a discussion of "Post-War Purchasing and Sales" was sponsored by the Purchasing Agents Association of Tulsa on May 13th. On May 17th a golf party for purchasing agents and salesmen was held at the Indian Hills Country Club.

1 1 1

MEMPHIS ASSOCIATION HEARS TALK ON COMMUNISM

Prof. C. S. Brown, professor of Economics, Memphis State College, addressed the April dinner meeting of the Purchasing Agents Association of Memphis on the topic of "Communism," as part of a series of educational programs he is conducting for the association.

"In the first place Russia does not have communism as it is understood," he declared. Russia has a species of communism. What Russia does have is a dictated planned economy." He also quoted certain passages from Karl Marx's Communist Manifesto to illustrate the goal or true ambitions of the original communist movement.

A Navy technicolor sound picture, "Operations Crossroads" based on the atomic bomb tests at Bikini was shown following professor Brown's talk.

(Please turn to page 236)



RUST-OLEUM STOPS RUST...

WHERE ORDINARY PROTECTION FAILS

IT'S USED BY INDUSTRY IN A THOUSAND WAYS!

Indoors or out—Rust-Oleum is a positive money-saver. IT STOPS RUST . . . and adds years of life to metal roofs, structural steel, machinery, equipment, etc. Actual tests reveal that Rust-Oleum outlasts ordinary protective materials two to ten times, according to conditions. Applied to iron and steel—even where rust has already started—Rust-Oleum spreads a tough weatherproof coating with high resistance to all destructive conditions—particularly rain, snow, dampness, heat fumes and sulphur-laden smoke. Modernize your maintenance program by specifying Rust-Oleum—it costs less per year for top protection.

HERE'S ANOTHER PROVED METHOD OF STOPPING RUST

"R-9" is a temporary protective coating intended to be removed. It is clean to work with . . . quickly applied. Dries in less than 72 hours. Does not smudge or rub off on hands or clothing. "R-9" provides practical, low-cost protection. Ordinary solvents remove it easily.

Write for new descriptive folder.



HOW RUST-OLEUM CUTS LABOR COSTS

- LESS PREPARATION—No sandblasting or "dissolving chemicals" are necessary. Simply wirebrush to remove rust scale and blister. Then apply right over the remaining rust. Dip, brush or spray!
- FASTER APPLICATION—Rust-Oleum can be applied 25% faster . . . and covers more area per gallon.
- LASTING PROTECTION—Rust-Oleum prolongs the interval of applications—at a proportionate saving in labor and materials.

Ask your distributor or write today for catalog of recommended applications—Also, ask about "R-9".

YOU WILL BE GLAD YOU MAILED THIS COUPON TODAY!

RUST-OLEUM CORPORATION

2439 Oakton Street

Evanston, Illinois

Gentlemen: Please send us a free copy of the new Rust-Oleum Catalog showing color selection and recommended uses.

Name

Firm

Address

City State

() Also send Folder on "R-9"

1872 75 YEARS OF SERVING INDUSTRY 1947



OUR 75th ANNIVERSARY

1947 marks an important milestone in the history of The Chicago Screw Company, identifying it as a veteran leader in its field.

During its 75 years of progress, The Chicago Screw Co. has compiled a vast store of knowledge and skill that makes its products a standard of perfection in the screw fastening industry.

Apace with this growth in craftsmanship has been the constant addition of machines and tools to keep every process in Chicago Screw production the most modern known.

Chicago "Safety Plus" Socket Screws always represent the highest standard of quality. Outstanding in strength, clean and true dimensionally, "Safety Plus" fastenings are ideal for modern production methods.

These Fine Products are sold only thru Authorized Distributors

THE CHICAGO SCREW CO.

ESTABLISHED 1872

1026 SO. HOMAN AVENUE CHICAGO 24, ILL.

CHICAGO "Safety Plus" line includes:

- Socket Head Cap Screws
- Socket Set Screws
- Stripper Bolts
- Square Head Dog Point Set Screws
- Pipe Plugs
- Keys for "Safety Plus" Products

Complete line includes:

- Hexagon Head Cap Screws
- Square Head Cup Point Set Screws
- Headless Set Screws
- Fillister Head Cap Screws
- Flat Head Cap Screws
- Taper Pins
- Milled Studs
- Semi-Finished Hexagon Nuts
- Semi-Finished Hexagon Castellated Nuts

(Continued from page 234)

CANTON ASSOCIATION VISITS REPUBLIC STEEL PLANT

The April meeting of the Purchasing Agents Association of Canton was attended by sixty members who gathered at the Onesto Hotel for the dinner. The group also visited the No. 2 plant of the Berger Manufacturing Co., division of the Republic Steel Corporation. The tour was under the direction of the assistant plant manager and was arranged by Karl R. Folz, purchasing agent for the Berger division, and president of association.

1 1 1

ELECTED VICE-PRESIDENT OF FOURTH DISTRICT

A. N. Phillips was elected vice president of the Fourth District at the recent District Council meeting held in Jackson, Michigan. Mr. Phillips who is purchas-



A. N. Phillips

ing agent of the Schwitzer-Cummings Co., Indianapolis, served as president of the Purchasing Agents Association of Indianapolis for two consecutive years in 1945 and 1946. As national vice president of the Fourth District he will represent on the national board the Central Michigan, Detroit, Fort Wayne, Grand Rapids, Indianapolis, Kalamazoo, Muskegon, Saginaw Valley and South Bend associations.

1 1 1

DALLAS ASSOCIATION HEARS TALK ON ASPHALT

Harold J. Buck, Dallas business executive, spoke before the April meeting of the Purchasing Agents Association of Dallas. The meeting was held at the Melrose Hotel. Mr. Buck spoke on "Asphalt—Nature's Most Versatile Product".

1 1 1

ROCK RIVER VALLEY ASSOCIATION HEARS TALK ON BALL POINT PENS

J. F. Crowley, wholesale manager of the Parker Pen Company delivered a short address on "Ball Point Pens" at the April meeting of the Purchasing Agents Association of the Rock River Valley at the Monterey Hotel in Janesville, Wisconsin. An additional attraction was provided by the presentation of a travel talk on Morocco, N. Africa, by Harlan Greenfield, of the American Weekly magazine, who had recently returned from there. He illustrated his talk with colored movies.

(Please turn to page 238)

"Cold-Laid Mastic is an All-Round Utility Floor"

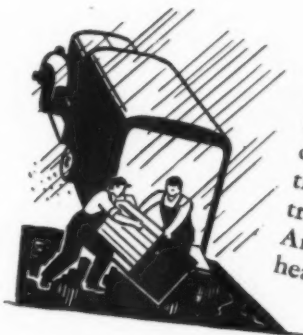
*Why do we make
this claim?*

Because Industrial Asphalt Mastic Floors made with Flintkote Flooring Emulsions can be laid quickly... over concrete, wood, steel, brick, or any other firm base.

They're equally efficient either for new construction or for resurfacing... for large areas or small... may be placed by hand troweling or power float method.



Flintkote Flooring Emulsions give you a tough, durable, heavy-duty industrial mastic floor with high traction value wet or dry. And one that can resist the heaviest traffic.



Workers like mastic because it forms a warm, comfortable, resilient working surface... because its shock-absorbing and sound-deadening qualities make any plant a more quiet, more pleasant place to work.



These are a few reasons why we recommend Industrial Asphalt Mastic Floors made with Flintkote Flooring Emulsions for almost any industrial flooring requirement. Write for specifications today.



THE FLINTKOTE COMPANY
INDUSTRIAL PRODUCTS DIVISION

30 Rockefeller Plaza
New York 20, N. Y.

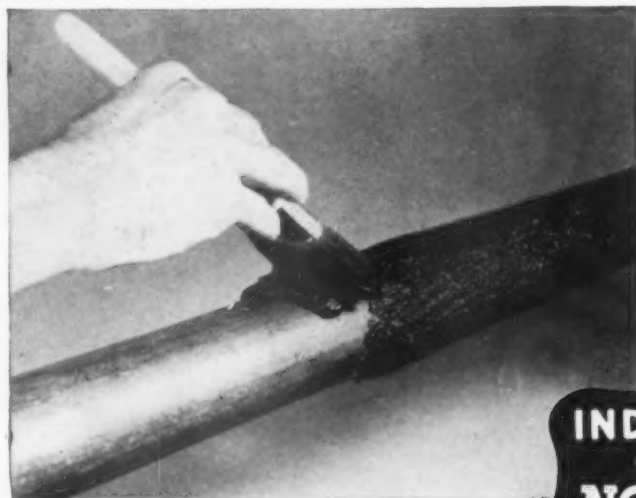
Atlanta
Boston
Chicago Heights
Detroit

Los Angeles
New Orleans
Washington
Toronto



FLINTKOTE
Products for Industry





**COVER
PIPES
TANKS
WALLS**

**INDUSTRIAL
NoDrip**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating which effectively **stops condensation drip.**

NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5 and 55 gallon drums, ready for use.

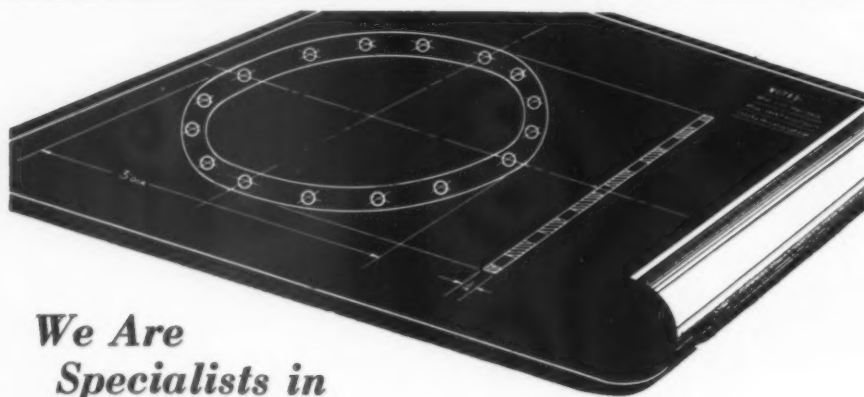


TRY NoDRIP

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for Free NoDrip Handbook

J. W. MORTELL CO. 547 Burch St., Kankakee, Ill.



**We Are
Specialists in**

DESIGNING & PRODUCING

**SPECIAL WASHERS
and SMALL STAMPINGS**

If you have a problem on Special Washers or Small Stampings, send it to us! More than a quarter-century of specialization has given us the "know how" to handle your requirements capably and economically. Perhaps we already

have the tools that are needed for your next job (we have more than 10,000 sets of tools on hand). If not, our experienced Tool & Die Department will be placed at your disposal. Send us your blueprints or specifications.

THE MASTER PRODUCTS CO.

6400 PARK AVENUE • CLEVELAND 5, OHIO

(Continued from page 236)

**CLEVELAND ASSOCIATION ELECTS
C. L. LESMER AS PRESIDENT**

Clarence L. Lesmer, Telling Belle Vernon Co., was elected president of the Purchasing Agents Association of Cleveland at the April 17th meeting at the Hotel Carter. Other new officers include: Frank J. DeCrane, Lamson Sessions Co., first vice-president; George Far, Addressograph-Multigraph Corp., second vice-president; and Al Kostulski, Graybar Electric Co., secretary-treasurer. Edward Pike, American Fork & Hoe Co., was re-elected a trustee.

Prior to the regular evening meeting a visitation was made to the Addressograph-Multigraph Corp. There the group inspected a full display of addressographs, multigraphs, multi-lith machines and supplies as well as the factory, chemical department, and various other sections of the plant.

1 1 1

**PACIFIC NORTHWEST CONFERENCE
HELD IN VANCOUVER**

The Eleventh Annual Pacific Northwest Purchasing Agents Conference was held in Vancouver, British Columbia, on April 26th and 27th. Over two hundred delegates were reported present from the Los Angeles, San Francisco, Oakland, Salt Lake City, Spokane, Portland, Seattle, Victoria, Trail and Toronto associations.

On Friday April 25th, preceding the conference, the District No. 1 council meeting, with national directors and other officers present from all Western purchasing agents associations, and a Pacific Northwest Public Buyers meeting were held.

George W. Aljian, president of the National Association of Purchasing Agents, officially opened the business session on Saturday afternoon, April 26th at the Hotel Vancouver. The three main topics under discussion were:

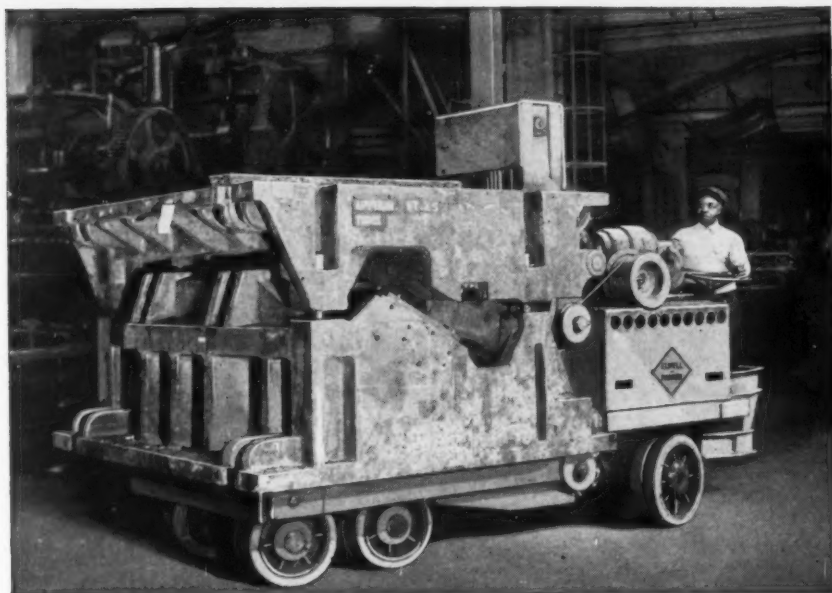
1. How should inventories be controlled at this period? (a) by the Industrial Buyer and (b) by the Re-sale Buyers. The main speaker was Don Tenny, Crown-Zellerbach Corp., Portland, Oregon.
2. How can buyer-seller relations be strengthened? The main speaker was Frank Watts, Pioneer Sand & Gravel Co., Seattle, Wash.
3. The Purchasing Agent's Responsibility to Management. The main speaker was C. S. Foreman, Hayes-Lawrence Mfg. Co., Ltd., Vancouver, B.C.

A Tea and Fashion Show was provided for the ladies present April 26 at the Hotel Georgia. A banquet followed by a floor show and dancing was held the same evening and was attended by approximately four hundred purchasing agents and guests. The golfers held their annual competition Sunday morning, April 27 The Oregon-Washington competition cup was won by the Oregon association and the Washington-British Columbia cup was won by the Washington association.

(Please turn to page 240)

SUPER STRENGTH

Another Reason Why
ELWELL-PARKERS are preferred!



THE "tank-tough" construction that characterizes Elwell-Parker trucks, tractors and cranes pays off in longer life and minimum maintenance costs. Here are a few reasons why so many Elwell-Parkers are "still going strong" after 20 years of service:


MODERN MATERIALS, PROPERLY PROCESSED—

Elwell-Parker makes generous use of alloy steels — chrome, molybdenum and nickel — wherever greater wear is encountered. On vital parts, drop forgings are used more extensively than in the average truck. E-P heat treating is thorough—often involving double or triple firing.

EXTRA RUGGED FRAMES—They have the true ring of one solid piece because they are durably welded and riveted into a unit of heavy gauge plate by Elwell-Parker craftsmen.

STRONGER MOTORS—They are E-P built, Class B type, practically indestructible and fire proof. Because these motors have more copper, greater commutator area, plus more brushes than usual, they easily absorb all the power that can be delivered to them.

UNIQUE ENGINEERING—Because Elwell-Parker engineers have had longer experience, they fully recognize the abuse and overload factor. Consequently, you find *surplus* strength wherever needed; for example: double stabilizing tilt racks, overload slip clutches, no fuses, and a new, high-speed travel controller.

For further evidence regarding the strength of these trucks, plus their proper application to your specific needs, call in the nearest  man. The Elwell-Parker Electric Co., 4519 St. Clair Avenue, Cleveland 14, Ohio.

ELWELL-PARKER

Established 1893

POWER INDUSTRIAL TRUCKS



They checked and found that every square foot of Blaw-Knox Steel Grating has these advantageous features:



FREE . . . So that you can have a "close-up" of Blaw-Knox Grating construction, write today for this "paper-weight-size sample" on your business letterhead.

1. *One-piece* electroforged construction develops the full strength of all sections of metal used in manufacture.
2. *Maximum Open Area* for light and ventilation.
3. *Easy to Maintain* . . . easy to paint thoroughly.
4. *Self-Cleaning*, no sharp angles to retain debris.
5. *Safe footing* at all times due to twisted cross bar.

**BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY**

2075 Farmers Bank Bldg., Pittsburgh 22, Pa.

BLAW-KNOX ELECTROFORGED STEEL
GRATING

(Continued from page 238)

**H. M. MCGILL SPEAKS BEFORE
PHILADELPHIA ASSOCIATION**

The guest speaker at the May 8th meeting of the Purchasing Agents Association of Philadelphia, held at the Bellevue-Stratford Hotel, was Herbert M. McGill, president of the McGill Commodity Service, Auburndale, Massachusetts. Mr. McGill spoke on the "Business Outlook."

Prior to the regular evening dinner session a forum meeting was held. It was divided into three sections, each discussing separate topics. One section met to discuss "Steel, Forgings, and Castings" under the leadership of W. B. Crossland, Yale & Towne Mfg. Co. The second section was devoted to the subject of "Chemicals" and met under the leadership of P. J. Clarke, Rohm & Haas Co. "Containers" were discussed by the third group, with J. A. Cantrall, S. S. White Dental Mfg. Co., leading the discussion.

1 1 1

**EDUCATIONAL PROGRAM MEETING
HELD BY N.W. PENNA. GROUP**

The educational program of the National Association was given an enthusiastic reception at a recent meeting of the Purchasing Agents Association of Northwestern Pennsylvania which was held in Bradford, Pa.

Various phases of the efficiency of a purchasing department were presented by C. H. Holden, acting as discussion leader. Every side of the subject was debated pro and con by the twenty-five members present.

1 1 1

**CONNECTICUT ASSOCIATIONS
HOLD JOINT MEETING AT HARTFORD**

The Purchasing Agents Association of Connecticut and the Hartford County Purchasing Agents Association joined forces to hold a combined meeting on April 29 at the Hotel Garde in Hartford. The combined groups heard a talk delivered by Frank W. Lovejoy, sales executive for the Socony-Vacuum Oil Co., entitled "Marketing Ourselves out of Reconversion."

1 1 1

**TORONTO ASSOCIATION
ELECTS NEW OFFICERS**

New officers for 1947-48 were elected at the annual meeting and past presidents' night of the Purchasing Agents of Toronto held at Royal York Hotel, May 14. Kenneth R. Wilson, editor of the Ottawa "Financial Post" addressed the group on "Outlook for International Trade."

Chosen by acclamation were: J. Russell Speers, United Steel Corp. Ltd., president; Harvey T. Sprang, Frankel Bros. Ltd., member Canadian Council; George McDowell, Robert Simpson Co. Ltd., national director; and Jack L. Liddle, A. R. Clarke & Co., honorary secretary.

(Please turn to page 242)



*Conveniently packaged,
space-saving V*S Drives
are available from 1 to
300 hp.*

PRODUCTION COSTS **DOWN** with RELIANCE V*S DRIVE

The *All-electric, Adjustable-speed Drive* operating from *A-c. Circuits*, V*S provides quick, smooth starts and stops — an infinite range of truly stepless speed changes — continuous maintenance of proper tension. Control can be automatic or manual . . . right at the machine or from nearby or remote stations. If you have not yet discovered the variable-voltage way to increased production and lower costs, write today for Bulletin 311—or call your nearest Reliance representative.

RELIANCE ELECTRIC & ENGINEERING CO.

1056 Ivanhoe Road • Cleveland 10, Ohio



Appleton, Wis. • Birmingham • Boston • Buffalo • Chicago
Cincinnati • Denver • Detroit • Gary • Grand Rapids
Greenville, S. C. • Houston • Kansas City • Knoxville
Los Angeles • Milwaukee • Minneapolis • New Orleans
New York • Philadelphia • Pittsburgh • Portland, Ore.
Roanoke, Va. • Rockford • St. Louis • San Francisco
Seattle • Syracuse • Tampa • Tulsa • Washington, D. C.
Sao Paulo, Brazil



*Feeding corrugated board into printer-slitter equipped with V*S Drive. Adjustable-speed motor is built into machine at right.*



*Operator at delivery end directs machine operation through V*S All-electric push-button control.*



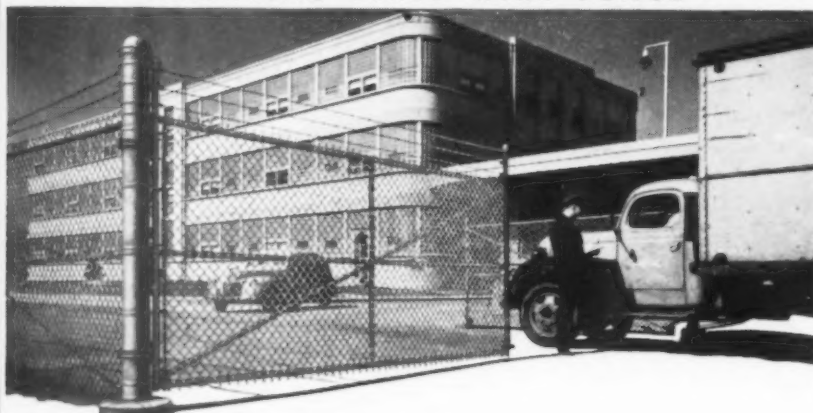
*Stacks of slotted and printed board accumulate fast with V*S Drive on the job!*

RELIANCE ^{AC}/_{DC} MOTORS

"Motor-Drive is More Than Power"

PAGE FENCE *-Since 1883*

• AMERICA'S FIRST WIRE FENCE •



Many Industries Prefer Aluminum Fence

• PAGE, originator of Chain Link Fence of Aluminum wire, reminds you that this corrosion-resisting metal may exactly meet your special needs and preferences. Or it may be that your choice will be rust-immune Page Stainless Steel . . . or Page Copper-Bearing Steel, heavily galvanized . . . or long-lasting Page-Armco Ingot Iron. Our nearby member will confer with you on best fence materials and styles for your property, and submit cost estimates without obligation. His is a long-established firm which knows local conditions. Write for illustrated information and we will send name and address of member nearest you.

For name of nearest member firm, write to PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Los Angeles, Philadelphia, Pittsburgh, New York or San Francisco

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE • BRIDGEPORT, CONN.

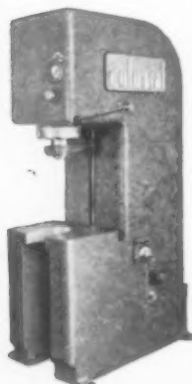
HYDRAULIC PRESSES

If you need an hydraulic press in the range of 1 to 50 tons—for assembly work, for straightening, for broaching, forming, punching, for work on plastics or aluminum and magnesium, you'll find it in the COLONIAL line. "JUNIOR" Presses in bench or pedestal types (1 to 4 tons; Bulletin VJ-1); UTILITY Presses available with or without speed,

pressure, and dual safety controls (4 to 10 tons; Bulletin VBS); ASSEMBLY Presses—available with speed and pressure control (10 to 50 tons; Bulletin PA); STRAIGHTENING Presses with single or dual rail (15 to 50 tons; Bulletin PS); also hydraulic POWER PRESSES custom designed to the job, with plain or special hydraulic circuits, indexing mechanisms, special fixtures, etc. Straightening and pull-down broaching attachments also available on smaller presses.



JUNIOR PRESS



ASSEMBLY PRESS

Write for Bulletins today.

colonial BROACH COMPANY
DETROIT 13, U.S.A.
Broaches Broaching Machines Broaching Equipment

(Continued from page 240)

RHODE ISLAND ASSOCIATION DISCUSSES WAA PROCEDURE

The April 28th meeting of the Purchasing Agents Association of Rhode Island was devoted to a discussion of the procedure used by the War Assets Administration. Members met at 4 p.m. at the local office of the administration in Providence, where they had occasion to view some of the materials and items currently available. Harry T. Bodell, in charge of the Providence office, demonstrated the method of handling inventories of materials outside of the area.

The regular dinner meeting was held in the Narragansett Hotel. Bernard J. Braudis, Regional Director, War Assets Administration, Boston, Mass., addressed the group, covering all phases of the Administration's operations. Following his talk he answered questions.

1 1 1

MILWAUKEE ASSOCIATION SPONSORS PRODUCTS OF INDUSTRY EXHIBIT

The Milwaukee Association of Purchasing Agents, Milwaukee, Wis., is holding a Products of Industry Exhibit at the Milwaukee auditorium on October 14, 15 and 16 of this year. The exhibit marks a resumption of exhibits sponsored by the association prior to the war.

1 1 1

CHICAGO ASSOCIATION HEARS EDUCATOR SPEAK

James E. McCarthy, Dean of the College of Commerce, University of Notre Dame, was the guest speaker at the May 8th meeting of the Purchasing Agents Association of Chicago at the Hotel Sherman. Dean McCarthy, who has also been a lecturer and business consultant, addressed the gathering on the topic of "The Common Interest."

The same evening the members of the Women's Group of the Chicago association met at the Electrical Association, Civic Opera Building. Mary Karvel was the speaker.

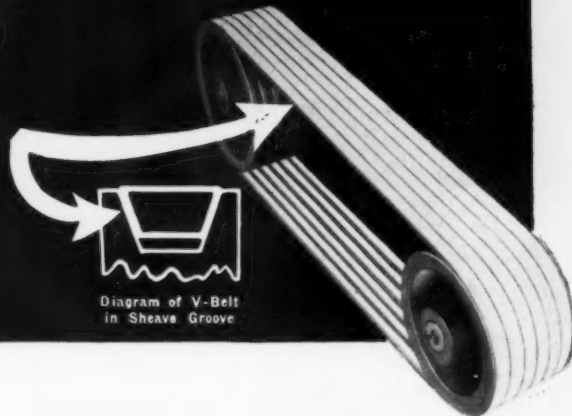
1 1 1

NEW ENGLAND ASSOCIATION VISITS WYMAN-GORDON PLANT

The Purchasing Agents Association of New England sponsored a visit of the Grafton, Mass., plant of the Wyman-Gordon Products Corp. on Wednesday morning April 30th. During the visit of this plant members of the association had occasion to view what is said to be one of the largest single pieces of machinery in the country, an 18,000 ton die forging press which produces light metal forgings. Following the tour of the plant the group had luncheon at the nearby Edgewood House, and spent the afternoon playing golf at the Worcester Country Club as guests of the Howard Bros. Mfg. Company.

(Please turn to page 244)

ONLY the **SIDE** of a V-BELT Grips the Pulley!



—That's why the **SIDE** is what really Gets the WEAR!

Look at a V-Belt in its sheave and you see at once that the *sides* of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.

Notice, too—it's the *sides* that pick up all the power delivered by the driver pulley. The sides transmit that power to the belt as a whole.

And then, once more, it's the sides—and the sides *alone*—that grip the driven pulley and deliver the power to it.

That is why you have always noticed that the sidewall of the ordinary V-Belt is the part that wears out first.

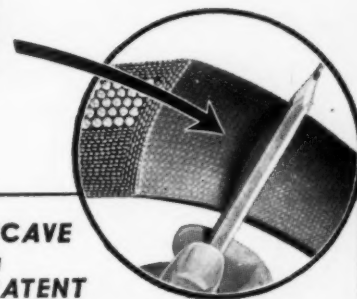
—and here is how the **CONCAVE SIDE** ★REDUCES Sidewall WEAR Giving You Much Longer Belt Life!

Clearly, since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt. The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

★More Important NOW That **STRONGER Tension Members are Used!**

Now that Gates Specialized Research has resulted in V-Belts having much stronger tension members—tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

THE GATES RUBBER COMPANY, DENVER, U. S. A.
"World's Largest Maker of V-Belts"

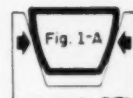


The **CONCAVE** SIDE is a **GATES PATENT**



Fig. 1
Straight
Sided
V-Belt

How Straight
Sided V-Belt
Bulges When
Bending
Around Its
Pulley



You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

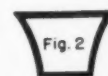


Fig. 2
Gates V-Belt
with Patented
Concave Sidewall

Showing How
Concave Side of
Gates V-Belt
Straightens to
Make Perfect
Fit in Sheave
Groove When
Belt Is Bending Over Pulley.



No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt.

476

GATES VULCO ROPE DRIVES

Engineering Offices
and Jobber Stocks

IN ALL INDUSTRIAL CENTERS

of the U. S. and
71 Foreign Countries



PERMAX

TWO-WAY INSECTICIDE

Kills Quickly On Contact
... Keeps On Killing!

FLIES and MOSQUITOES

FLEAS BEDBUGS

MOTHS

ROACHES

CARPET BEETLES

ANTS SILVERFISH

**AND MANY OTHER
SPECIES OF INSECTS**

PERMAX, used as directed and applied by brush or spray, kills insect pests two ways — *in the air and on surfaces*. And its 5% DDT content means freedom from vermin infestations for months. Economical, too — one gallon of PERMAX leaves a film covering an average area of 950 square feet!

PERMAX is unaffected by seasonal changes . . . a high auxiliary solvent prevents DDT crystallization in cool weather. Also contains a rust inhibitor which guards against deterioration of metal container and spray equipment.

Complete instructions for PERMAX vermin control are contained in folder PX-846-J. Write for your copy now.

PERMAX

The C. B. DOLGE CO.
WESTPORT, CONNECTICUT

(Continued from page 242)

WESTERN MASSACHUSETTS GROUP ANNOUNCES SUMMER COURSE

The Purchasing Agents Association of Western Massachusetts will sponsor a course in purchasing for all purchasing agents of the Connecticut Valley this summer at the American International College, it was announced at the association's April meeting at the Hotel Sheraton in Springfield.

The dinner was held in honor of the association's past presidents and featured a talk on "Purchasing Know-How" by F. Albert Hayes, Bigelow-Sanford Co., and the election of new officers.

Raymond Fleury, A. G. Spaulding Bros., was elected president; O. Carl Toothill, Van Norman Co., became first vice-president and John B. Donovan, Valentine Concrete Co., secretary-treasurer.

1 1 1

STEEL EXECUTIVE ADDRESSES FORT WAYNE ASSOCIATION

B. J. Willner, vice president in charge of sales, Sheet and Strip Division, Inland Steel Corp., Chicago, was the guest speaker at the third annual meeting of the Purchasing Agents Association of Fort Wayne at the Chamber of Commerce, on April 21. Approximately one hundred purchasing agents and industrial executives and an additional hundred or so representatives of all the major steel companies serving the area attended the dinner session. Noah Tilman presided over the meeting.

1 1 1

PROTECTIVE COATINGS TWIN-CITY MEETING

Protective Coatings was the subject of talk at the May 14th meeting of the Twin City Association of Purchasing Agents, by J. C. Konen, Director of Research, Archer Daniels Midland Co., at the St. Paul Athletic Club, St. Paul, Minn. In the afternoon, through arrangements made by Pat Malone, members of the association visited the Ford Motor Company's plant where they viewed the assembly line, the glass plant, and the power plant.

1 1 1

HAROLD W. MACINTOSH IS ELECTED EIGHTH DISTRICT VICE-PRESIDENT

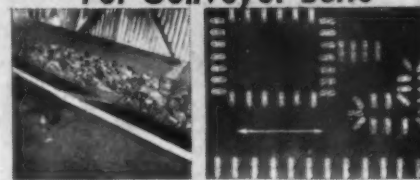
Harold W. Macintosh, currently national director of the Purchasing Agents Association of New York, was elected vice-president of the National Association for the Eighth District at a recent district council meeting on Baltimore. He will take office at the annual convention of the NAPA at the Waldorf Hotel in June. As national vice president for the eighth district he will represent on the national board the Baltimore, Buffalo, Carolinas-Virginia, Eastern New York, Elmira, Lehigh Valley, New York, Philadelphia, Reading, Rochester, Syracuse and Washington, D. C. associations.

(Please turn to page 247)

Present Day Practice in Belt Fastening

Every man who has anything to do with the purchase, application or maintenance of conveyor, transmission or V-belts will find the bulletins listed below of considerable value in connection with belt fastening work. A knowledge of present day practice in belt fastening helps reduce the loss in machine hours due to belt failures caused by the use of the wrong type of fastener or improper application. We shall be glad to send any or all of them to you or to any of the men in your organization.

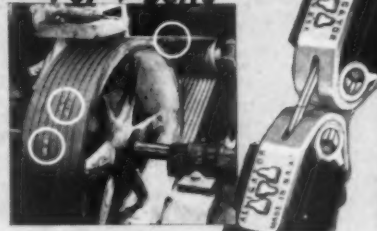
For Conveyor Belts



FLEXCO HD Belt Fasteners are used to make a "water-tight" butt joint in conveyor belts ranging from 1/4" to 1 1/2" thick and of any width. The view on the right shows the various types of rips that can be repaired with these fasteners and Flexco HD Rip Plates.

Bulletin F-100 gives complete details on how to fasten and repair conveyor belts.

For V-Belts



ALLIGATOR V-Belt Fasteners are now being widely used to fasten B, C and D, open-end V-belt of cross woven fabric core construction now being made by most belting manufacturers. The view at the left shows a typical application of these fasteners to a drive where endless V-belts would require dismantling the machinery to put the belts on the sheaves.

Bulletin V-205 gives complete instructions on how to use V-belt fasteners.

FLEX V Fasteners for A and B belts are also available for lighter duty V-belt drives. Ask for **Bulletin V-14**.

For Transmission Belts



"JUST A HAMMER TO APPLY IT"

ALLIGATOR Steel Belt Lacing is in worldwide use to make smooth, flexible joints in leather, rubber, balata, stitched canvas or solid woven belts up to 3/8" thick and as wide as they come.

Bulletin A-60 tells how to fasten and repair transmission belts.

Sold by Supply Houses Everywhere

FLEXIBLE STEEL LACING COMPANY
4031 Lexington Street, Chicago 44, Ill.

For men who look before they leap

Our favorite people are men who always look before they leap.

Practically all our customers and prospects are that way—they want to see what Bundyweld is and why

Bundy Tubing is different.

So we show them. Once they get a look at Bundyweld superiority, they almost always leap for an order blank. Here's what they see:



This inside story shows why Bundyweld Steel Tubing is specified by hundreds of discerning manufacturers of high-quality products. Bundyweld uses are many—from motor vehicles to refrigerators, from gas ranges to Diesel engines. If your requirement is for outstanding mechanical properties, let us tell you more about Bundyweld. Also avail-

able in nickel and Monel. Write: Bundy Tubing Company, Detroit 14, Michigan.

BUNDY TUBING
 ★ ★  ★ ★
 ENGINEERED TO YOUR EXPECTATIONS

BUNDY TUBING

DISTRIBUTORS AND REPRESENTATIVES:

Pacific Metals Co., Ltd.
 3100 19th St.
 San Francisco 10, Calif.

Standard Tube Sales Corp.
 1 Admiral Ave.
 Maspeth, N.Y.C., N.Y.

Lapham-Hickey Co.
 3333 W. 47th Place
 Chicago 32, Illinois

Rutan & Co.
 404 Architects Bldg.
 Phila. 3, Pa.

Eagle Metals Co.
 3628 E. Marginal Way
 Seattle 4, Wash.

Alloy Metal Sales Ltd.
 861 Bay St.
 Toronto 5, Canada

"Drive Faster..."

set up solid, without burrs"

says **EVINRUDE**



NO WOBBLY STARTS and slow driving to avoid skids here. Phillips Screws go in fast, set up tight and flush to hold cover of water jacket.

DRIVING TIME CUT 30% in fastening base plate to muffler assembly with Phillips Screws. Power driver centers and stays in recess—no slips.



... Key points of another study of assembly savings made with Phillips Screws in leading plants; from report of James O. Peck Co. independent investigator.

"Obvious assembly savings prompted our use of Phillips Head Screws in the 'Zephyr' Outboard Motor," explained Evinrude's Works Manager, "and results are even better than expected."

"Phillips Screws make the most of power tool speed. No lost motion as when driving slotted screws. We just bring the driver bit down and it automatically centers and seats in the Phillips Recess. That makes for a



TIGHT FASTENING is essential in joining the two parts of the die cast fuel tank, so Evinrude depends on Phillips Screws. Photo shows use of Phillips Screws for attaching nameplate where skids would mean expensive refinishing.

★ ★ ★

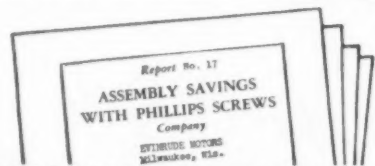
very fast operation...and an economical assembly. Also, we avoid driver skids, and subsequent expensive refinishing.

"We have to set 'em up solid, and the Phillips Recessed Head can take the necessary torque without breaking or burring. Outboards often get rough usage, and

Phillips Screw fastenings match the sturdiness of the overall construction.

"**Dangerous burrs avoided.** Workmen can get bad cuts on hands and arms from sharp burrs common to slotted screws. With Phillips Screws, that hazard is banished, and the burr-free, ornamental recess has a much more shipshape appearance.

You'll find good ideas for your assembly operations in the complete report of this and other assembly studies... on metal, wood, and plastic products. Inside facts on modern methods of America's best assembly engineers. **FREE**—use coupon.



Phillips Screw Mfrs., c/o Horton-Noyes
1800 Industrial Trust Bldg.,
Providence, R. I.

Send me reports on Assembly Savings with Phillips Screws.

Name

Company

Address

PHILLIPS Recessed Head SCREWS

Wood Screws • Machine Screws • Self-tapping Screws • Stove Bolts

23 SOURCES

American Screw Co.
Central Screw Co.
Continental Screw Co.
Corbin Screw Div. of
American Hdwe. Corp.
The H. M. Harper Co.
International Screw Co.
Lamson & Sessions Co.
Milford Rivet and Machine Co.
National Lock Co.

National Screw & Mfg. Co.
New England Screw Co.
Parker-Kalon Corporation
Pawtucket Screw Co.
Pheoll Manufacturing Co.

Reading Screw Co.
Russell Burdall & Ward
Bolt & Nut Co.
Scovill Manufacturing Co.
Shakeproof Inc.
The Southington Hardware Mfg. Co.
The Steel Company of Canada, Ltd.
Sterling Bolt Co.
Stronghold Screw Products, Inc.
Wolverine Bolt Company

Continued from page 244)

EDUCATIONAL MEETING AT WILMINGTON

Stuart F. Heinritz, editor of *PURCHASING Magazine*, New York, was the principal speaker at Educational Meeting held by the Purchasing Agents Association of Wilmington, at the Hotel DuPont, Monday, May 26th, his subject being "Education Never Ends." The meeting marked the culmination of the association's educational program held during recent months, and was particularly dedicated to the members of the Basic Course in Purchasing Policies and Procedures sponsored by the association. Dr. Charles N. Lanier, Jr., chairman, Department of Economics and Business Administration, University of Delaware, was the class instructor. Certificates were awarded enrollees denoting successful completion of the course.

John K. Conant, American Viscose Corporation, is chairman of the association's educational committee.

1 1 1

DAIRY INDUSTRY REPORT AT MILWAUKEE ASSOCIATION

Latest developments in the dairy industry were reviewed at the monthly meeting of the Milwaukee Association of Purchasing Agents, May 13 at the Milwaukee Elks' Club, by H. F. DePew, of the dairy division, Luick Ice Cream Co.

The group held its regular commodity discussion, the last until the September meeting. Members of the Marquette University M.A.P.A. Class in Purchasing attended the meeting, and certificates were awarded to all who had completed the course. Prof. George Knick awarded prizes for the five best papers submitted on "Evaluating the Services of the Purchasing Department."

1 1 1

INDUSTRIAL PSYCHOLOGIST SPEAKS AT BRITISH COLUMBIA MEETING

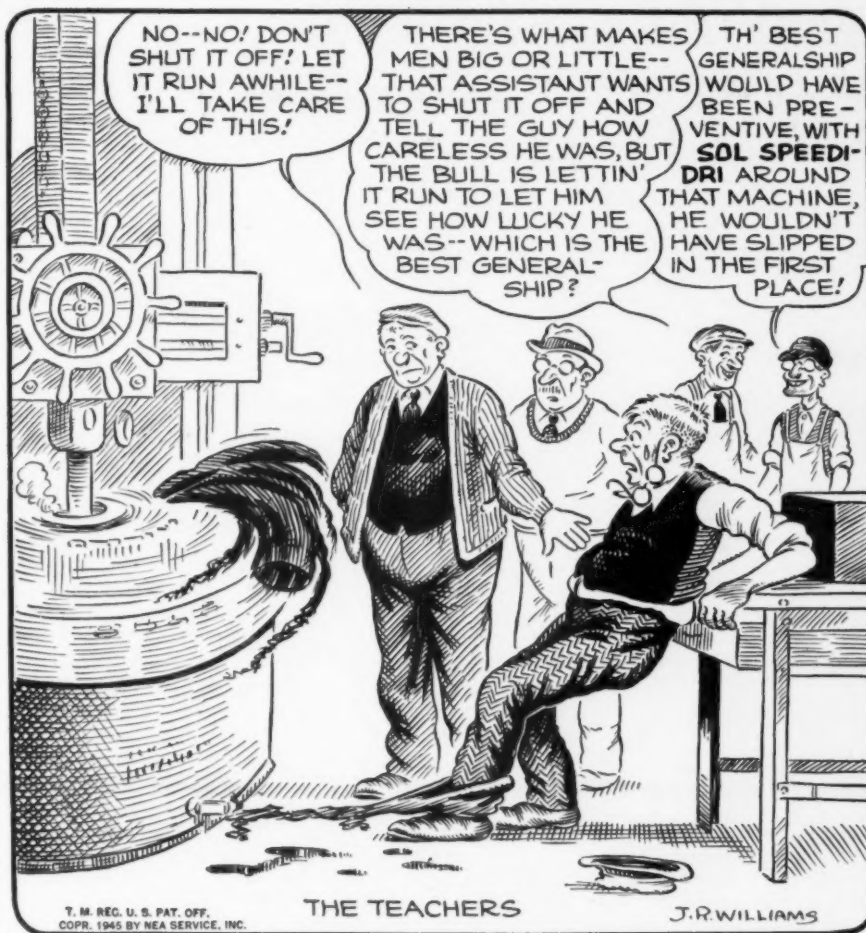
J. W. A. Fleury, industrial psychologist for the British Columbia Electric Co. Ltd., and lecturer at the University of British Columbia, addressed the regular monthly meeting of the Purchasing Agents Association of British Columbia at the Vancouver Hotel, in Vancouver.

The unhappiest man is one who is holding down a job beyond his capabilities, and is constantly afraid of being found out, Mr. Fleury said. The most dissatisfied is the man who has abilities beyond his job and feels the challenge to use them. The application form is the most important test an applicant takes, but, Mr. Fleury emphasized the modern trend is to find out first if the man can do what the job requires.

On April 16th the association's Food Industries Group met at the Terminal City Club. Short addresses on "Supplies and Trends" in the meat, poultry, butter and cheese, and fruit and vegetable markets were presented and followed by a general discussion.

(Please turn to page 248)

OUT OUR WAY



SAFETY FIRST AND LAST WITH "SOL-SPEEDI-DRI"

SOL-SPEEDI-DRI soaks up soluble oils, resins, syrups, solvents, acids, coolants, and regular oils and greases like magic. It makes oil-soaked floors safe for walking, safe for working. SOL-SPEEDI-DRI re-

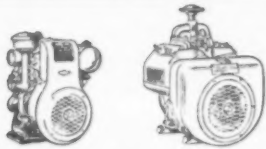
duces the danger of fire—for it will not burn. It requires no expensive machinery—no trained personnel—for its use. SOL-SPEEDI-DRI works—while your employees work in safety!

Safety and Maintenance Co., Inc., No. 1 Wall Street, New York 5, N. Y.
Warehouse stocks maintained in principal cities of the United States and Canada



POWER CERTAINTY

PROVIDED BY
WISCONSIN
HEAVY-DUTY
Air-Cooled
ENGINE



The Kwik-Mix 11-S Dandie, made by Kwik-Mix Company, Port Washington, Wis. (Koehring Subsidiary), not only has a reputation for fast charging, fast discharge and quick re-mixing . . . but it is also noted for Power Certainty . . . the ability to keep on going day after day, in any weather, anywhere. This is a logical result of heavy-duty power delivery by the Model VE-4 (V type, 4 cylinder) Wisconsin Air-Cooled Power Unit

which turns up 20.5 hp. at 2200 R.P.M. Incorporated in this engine are features of Heavy-duty design pioneered by Wisconsin . . . assuring maximum serviceability on the job and minimum maintenance costs.

For Power Certainty . . . regardless of the kind of equipment you are using . . . specify "Wisconsin Air-Cooled Engines" . . . for any machine or job within a 2 to 30 hp. range. Descriptive literature on request.



WISCONSIN MOTOR Corporation

MILWAUKEE 14, WISCONSIN

World's Largest Builders of Heavy Duty Air-Cooled Engines



THESE

UNBRAKO

Reg. U. S. Pat. Off.

**Self-Lockers
CAN BE USED
OVER and OVER
AGAIN**

PAT'D AND
PATS. PENDING

Knurling of Socket
Screws originated with
"Unbrako" in 1934.

The "Unbrako" Socket Set Screw with the Knurled Cup Point is a **SELF-LOCKER**—its knurled point digs in and holds tight—regardless of the most chattering vibration. Yet, it can be backed-out with a wrench and used **OVER and OVER AGAIN**. Many, many millions in use,—and no wonder! Available in sizes from #4 to 1½" in diameter; full range of lengths. Write for "Unbrako" Catalog, today.

"Unbrako" and "Hallowell" Products are sold entirely through Industrial Distributors

OVER 44 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA.

BOX 590

BOSTON • CHICAGO • DETROIT • INDIANAPOLIS • ST. LOUIS • SAN FRANCISCO

(Continued from page 247)

"EXPEDITING AND FOLLOW-UP" NEW YORK ASSOCIATION

A forum discussion on "Current Methods of Expediting and Follow-up of Orders" featured the regular meeting of the Purchasing Agents Association of New York at the Builders' Exchange Club, New York city, May 20. Leading the discussion on peace time follow-up and expediting were Harold K. LaRowe, American Cyanamid Co.; Edward H. Hanhausen, and Nathan Jones. The M. W. Kellogg Co., and Herbert M. Kingsland, Aircraft Radio Corp.

Frederic Snyder, journalist and originator of a verbal newspaper, addressed the evening portion of the meeting on "Keeping Ahead of the Headlines".

The following slate of officers has been submitted by the nominating committee to be voted on at the annual meeting, June 17: for president, David M. Mecker, Paraffine Companies, Inc.; first vice-president, Donald H. Lyons, Johns-Manville Corp.; second vice-president, G. W. Howard Ahl, Columbia Ribbon & Carbon Mfg. Co., Inc.; treasurer, Edward B. Fielis; member of the executive committee, three year term, Harvey C. Hopkins, American Can Co. and Stanley W. MacKenzie, United States Rubber Co.; one year term, Curran Ridout, International Standard Electric Corp.

1 1 1

METROPOLITAN ASSISTANTS HEAR ESCALATOR TALK

"Escalation" was the subject of a talk and forum at the monthly meeting of the Metropolitan Purchasers' Assistants Club, at the Midston House, N. Y., May 13. J. A. Wiley, Purchasing Agent for Chemical Construction Company, spoke briefly on the topic and conducted the discussion that followed. A motion picture on lubrication was shown, with additional comment by D. B. Gordon, chief engineer of Socony Vacuum Co.

1 1 1

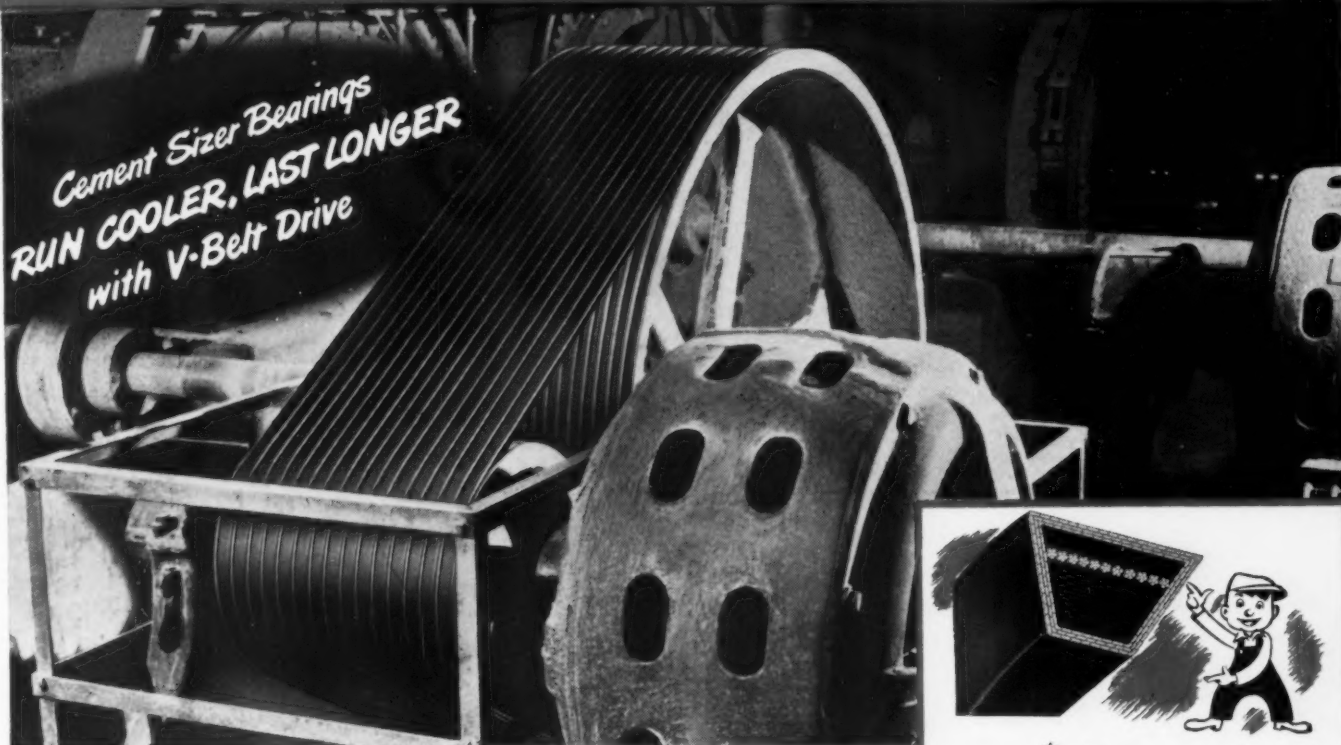
WASHINGTON WOMEN'S GROUP VISITS STEEL PLANT

The April meeting of the Women's Group of the Purchasing Agents Association of Washington, Seattle, Wash., took the form of a tour of the Bethlehem Pacific Coast Steel Company. There the ladies witnessed the removal of the molds from the ingots, rolling mill operations and other processes in the manufacture of steel. Following the visit the group assembled at the Casa Villa for dinner and a short meeting.

Eddie Fei, lecturer at the University of Washington, discussed trade relations with China at the Association's dinner meeting at the Golden Pheasant cafe, May 1.

(Please turn to page 250)

WHY DAYTON V-BELTS *are Easy on Bearings*



It takes a lot of power to run a cement sizing machine, and power drive bearings take a terrific beating. In the plant of a leading cement producer, the original drives on the five large sizers caused bearings to run extremely hot, resulting in excessive bearing wear and necessitating frequent replacements. Dayton V-Belt Drives were installed. Bearing operating temperatures were reduced two thirds and bearing replacements were reduced to a minimum.

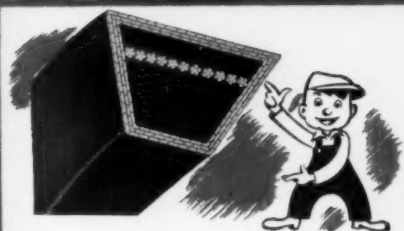
Dayton V-Belts are easy on bearings

because their firm, natural grip in the pulley grooves makes it unnecessary to provide swinging motor bases, idlers and other tension-increasing devices to keep V-Belts from slipping.

Power requirements need not be increased to provide the extra power needed to run idlers. These are some of the reasons why Dayton V-Belts can help you solve your power transmission drive problems efficiently and economically. Your Dayton Distributor will gladly tell you the full story. Call him today.

DAYTON RUBBER • DAYTON, OHIO

Branch Offices: Atlanta • Boston • Chicago • Cincinnati • Cleveland • Dallas
Detroit • Los Angeles • Minneapolis • New York • Philadelphia • St. Louis



NOW! **Rayon Cords*
PROVIDE DAYTON V-BELTS

with

1. MINIMUM STRETCH
2. GREATER FLEX STRENGTH
3. LONGER V-BELT LIFE

*Rayon Cords are specially processed by Dayton for use in V-Belts to provide the most efficient and economical power transmission service for your needs. For the complete story, write for booklet A-469.



V-BELT BUYERS!

A leading mill supply house near you stocks Dayton V-Belts...
Look for the name in the yellow pages of your telephone directory

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER
THE WORLD'S LARGEST MANUFACTURER OF V-BELTS



... fire destroys
\$500,000 Plant
in 30 Minutes

C-O-TWO

**STOPS
COSTLY
FIRES**

1. Fire started here. A tiny flame in this maze of pipes, pumps and tanks mushroomed to inferno pitch in minutes. A C-O-Two fire extinguishing system here, with a smoke detector, rate-of-rise or fixed temperature actuator, would have flooded the area with dry, sub-zero carbon dioxide gas and smothered the fire before it had a chance to spread.

2. 10,000 gallons of alcohol sent flames leaping 100 feet above the plant; intense heat drove firefighters away from the blazing building. C-O-Two blankets alcohol, gasoline and other flammable liquid fires in clouds of cooling, inert, oxygen-diluting carbon dioxide gas. It does not scatter blazing liquid.

3. In 30 minutes the roof and two walls had collapsed. A few seconds later, the remaining walls fell.

4. 90 minutes after the fire started—this is all that was left of a \$500,000 specialized processing plant—twisted metal and smoking rubbish. C-O-Two systems detect fires at once and put them out instantly, before they cause excessive damage.

If your plant has special fire hazards such as electrical equipment, diesel engines, spray booths, dip tanks, blueprint and record vaults or cooking vats, be sure they are protected. C-O-Two, the modern fire extinguishing agent, is safe to use on live electric equipment; it does not corrode metals, injure fabrics and finishes nor contaminate food. C-O-Two is available in sizes for every type risk: famous Squeeze-Grip portables, wheeled and hose reel units, automatic or manually operated fixed pipe systems, smoke detecting systems and heat-actuated fire detecting systems. A C-O-Two distributor or one of our engineers will help you plan safe, modern fire protection. Write for further information.

C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada
AFFILIATED WITH PYRENE MANUFACTURING COMPANY

(Continued from page 248)

HEINRITZ ADDRESSES WASHINGTON ASSOCIATION

Election of officers for 1947-48 and an address by Stuart F. Heinritz, Editor, *PURCHASING* Magazine, New York, marked the Election Night dinner meeting of the Purchasing Agents Association of Washington, D. C., May 13 at the Mayflower Hotel. Mr. Heinritz spoke on "How Buyers Behave in a Buyers' Market".

Officers chosen were: A. V. Hawkins, Purchasing Agent, Potomac Electric Power Co., president; K. M. Pardoe, Assistant Purchasing Agent, Capital Transit Co., vice-president; Norbert F. Sherman, Purchasing Agent, Mayflower Hotel, secretary-treasurer. Named to the board of directors: Clifton E. Mack, director, Bureau of Federal Supply, Treasury Department; Roland M. Brennan, Purchasing Officer, District of Columbia; David S. Haddock, Purchasing Agent, A. B. & W. Transit Co., and Julius Kallins, Purchasing Agent, Carfritz Co. Mr. Mack was chosen national director.

"POST-WAR PURCHASING" TULSA ASSOCIATION

Discussion on "Post-war Purchasing and Sales Problems" by a speakers' panel of buyers and sellers featured the regular meeting of the Purchasing Agents Association of Tulsa, May 13. The meeting was preceded by an open forum on "Field Purchase Procedure", with F. P. Nopper, Assistant Purchasing Agent, Gulf Oil Corp., as discussion leader.

ROCHESTER ASSOCIATION HEARS REFORESTATION TALK

A. S. Hopkins, assistant director Conservation Department, division of Land and Forests, New York State, was guest speaker at the regular meeting of the Purchasing Agents Association of Rochester, May 21. Mr. Hopkins described the state's reforestation program and its effect on the production of wood products.

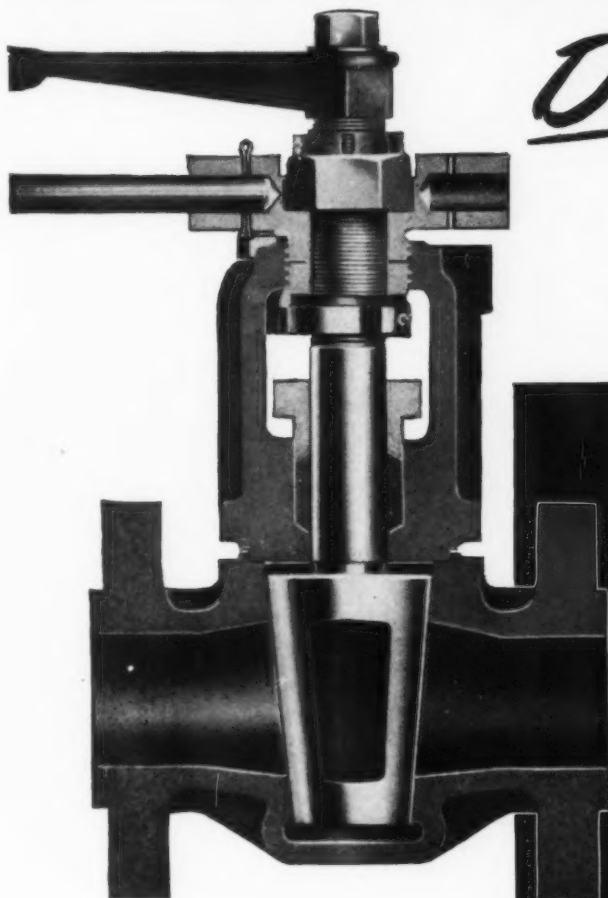
RALPH KEEFER ADDRESSES N.W. PENNSYLVANIA GROUP

Ralph Keefer, Sixth District Vice-President of the National Association of Purchasing Agents, was guest speaker at the regular meeting of the Northwestern Pennsylvania Association, May 8, at the Arlington Hotel, Oil City. He discussed activities of the National Association.

The regular program of the meeting included a discussion on visits to suppliers' plants, the affirmative stand being taken by Ray Keeney of Clark Bros. Co., the negative by P. L. Gedeon of Universal Cyclops Steel Corp. Following general discussion, the consensus was that generally Purchasing Agents should visit plants but with several important exceptions.

(Please turn to page 252)

ELIMINATE VALVE FAILURES



Due to **CORROSION**
TEMPERATURE AND
PRESSURE EXTREMES

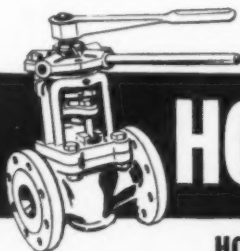
with
HOMESTEAD
LEVER-SEALD
VALVES

They're Stick proof... Here's Why:

1. INSTANT STICK-PROOF OPERATION.
2. Quarter-turn fully opens or closes.
3. Positive mechanical seal.
4. Seating surfaces always protected in both open and closed positions. Corrosion practically eliminated.
5. Unobstructed straight-line fluid flow.
6. All operating parts protected from damaging effects of service conditions and weather.

Built into every valve is a powerful lever-and-screw device which relieves seating pressure between valve plug and body just enough to prevent friction and permit *easy turning at all times and under all conditions*. This exclusive LEVER-SEALD mechanism assures never-failing stick-proof operation no matter what the line contents are or how long the valve has remained in an open or closed position. Operation is positive even at temperatures as low as 40° below Zero or as high as 1120° Fahrenheit, at pressures from vacuum to 1500 pounds. The absolute reliability of HOMESTEAD LEVER-SEALD VALVE operation has kept them favorites for over 15 years, for difficult applications where temperature extremes, pressure and the corrosive action of line fluids render ordinary valves inoperative.

HOMESTEAD LEVER-SEALD VALVES are made in combinations of metals and alloys, such as stainless steel, Monel Metal, Ampco Metal, Ni-Resist, Durimet, etc., to meet your service requirements in sizes 1½" to 10". Write for complete details and Valve Reference Book No. 38.



HOMESTEAD LEVER-SEALD VALVES

HOMESTEAD VALVE MANUFACTURING CO. • P. O. BOX 93

CORAOPOLIS, PENNA.

TRIPLEX

for toughness



Cap Screws in all four heads

Tough, TripLex Cap Screws are made to "take it" where the going is roughest. It's that extra strength that counts on today's high-speed machines and motorized equipment. Made in Flat, Hex, Fillister and Button Heads—up to 1" in diameter and 8" in length. Some sizes are in stock for immediate shipment. Write for new catalog.

THE TRIPLEX SCREW COMPANY
5331 Grant Avenue, Cleveland 5, Ohio

TRIPLEX

THREADED FASTENERS
CAP AND SET SCREWS • BOLTS, NUTS AND RIVETS

(Continued from page 250)

"TRAFFIC DEPT. FUNCTIONS" MONTREAL ASSOCIATION

The Purchasing Agents Association of Montreal heard Fred T. Parker, Manager of Traffic and Customs, Canadian Industries Ltd., speak on "Some Functions of a Traffic Department" at the last meeting of the current year, May 20, at the Mount Royal Hotel. The regular Research Clinic of the group preceding the meeting was devoted to the Purchasing Forum under the guidance of John Crawford and Fred Samis.

1 1 1

PITTSBURGH ASSOCIATION SEES COLOR SOUND FILM

An entertaining color sound film, loaned through the courtesy of Canadian National Railway, was shown at the regular meeting of the Purchasing Agents Association of Pittsburgh, May 20, at Hotel William Penn. This was the last meeting of the current year for the Association.

1 1 1

R. I. ASSOCIATION ANNUAL MEETING

Reports by officers and committee chairmen were presented at the Annual Meeting of the Rhode Island Purchasing Agents' Association, held at the Pawtucket Golf Club, May 19.

The nominating committee has submitted the following slate of officers for 1947-48: for president, Thomas W. Seaver; first vice president, Edgar H. Burgess; second vice-president, F.C.P. Drummond; secretary-treasurer, Arnot Hirst; national director, John S. Dickson; directors, James E. Brophy, Bernard G. Byrne, J. Joseph Fogarty, Howard A. Chamberlain.

1 1 1

NEW OFFICERS CHOSEN BY UTAH ASSOCIATION

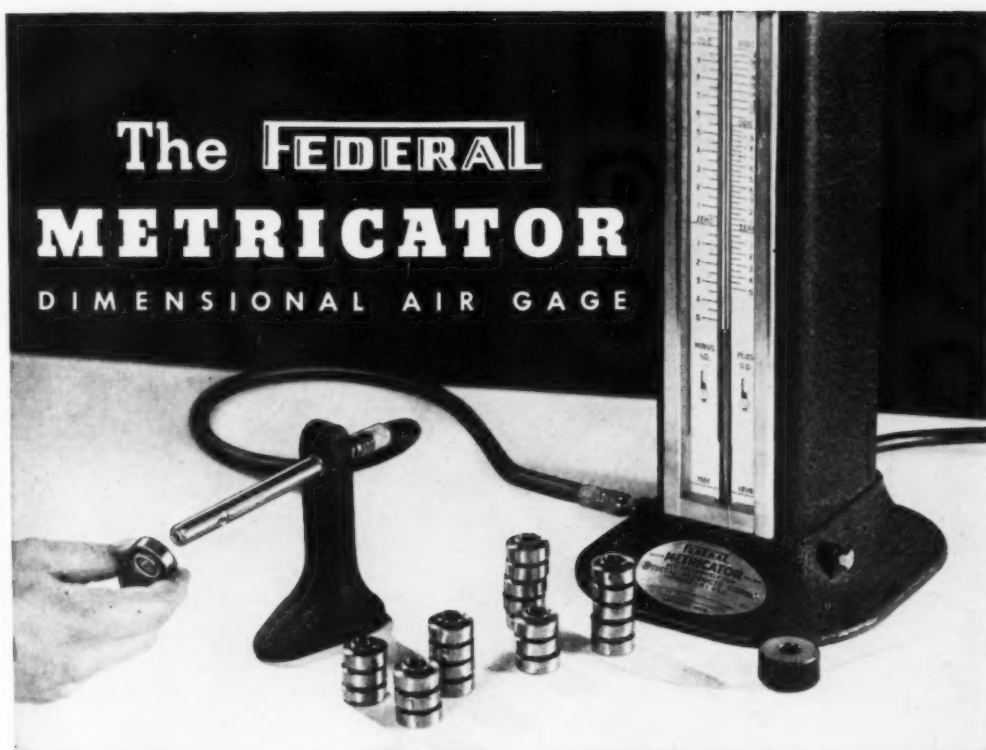
Meeting on May 8 at the Temple Square Hotel, the Purchasing Agents Association of Utah elected the following officers for the coming year: Orson W. Kasteler, president; C. R. Sleater, vice-president; William C. Allen, secretary, and R. E. Winn, treasurer. Herbert Weindel, retiring president, was named national director. The group heard a report on the 11th Pacific Northwest Annual Conference of Purchasing Agents held at Vancouver, B. C., April 26 and 27, given by Joseph G. Stone, retiring national director. Films of the University of Utah basketball team, taken in Madison Square Garden, were also shown.

1 1 1

CLEVELAND CAP SCREW CO. HONORS EMPLOYEES

Service pins were presented to 53 employees of the Cleveland Cap Screw Company at the second annual banquet of the "Plus Five Club" recently held in the Cleveland Club, Cleveland, Ohio.

(Please turn to page 254)



Simplest to set up — simplest to operate — shows actual dimensional variations — not merely rejects.

The simplest in design and construction —that means positive accuracy, economy, foolproof operation

THIS dimensional air gage has only two operating units — the gaging head and the indicator column. No special skill is required in applying the gaging head to either inside or outside dimensions; it guides and locates itself. Dimensional variations as small as .000025" are amplified thousands of times so that they are easy to see on the numbered scale.

The Federal Metricator requires no pressure regulators, filters, constant pressure controls, drains, floats or other mechanical controls. Air is drawn from your own air supply or from an inexpensive 1/12 H.P. compressor. Ordinary tap water is used in the indicator column. Only one master is required for setting and checking the gage.

The complete simplicity of this precision instrument means foolproof operation, when the accuracy of workpiece dimensions is to be measured. It offers many other practical advantages . . .

By actually *measuring* dimensional variations — instead of merely *comparing* — you salvage a high percentage of your former rejects.

Several gaging heads of various sizes can be operated from the same indicator column. When interchanging heads of different sizes, no ad-

justments are required — and no change in the scale. Several different dimensions can be inspected *simultaneously* by the use of an indicating column equipped with multiple measuring scales.

The accuracy of the Federal Metricator is *not* dependent upon springs, sensitive calibrated tubes or precision glass tubes. Its positive, self-compensating pressure control cannot go wrong. The non-adjustable master jet maintains *fixed* gaging accuracy. Even dirt in the water — and dirt and moisture in the air line — have no effect on this accuracy.

Because air requires no mechanical contacts and can be directed into places frequently inaccessible by mechanical gages — the Federal Metricator is both adaptable and efficient for gaging hard-to-get-at dimensions, soft materials and fine finishes.

In total life the cost of the gaging heads is much *less* than that of conventional plugs; a gaging head outwears the mechanical go, no-go plug hundreds of times.

The Federal Metricator furnishes a better way to gage many critical dimensions; it is well worth your careful consideration. Write for illustrated Bulletin No. 19 and a demonstration, if desired.

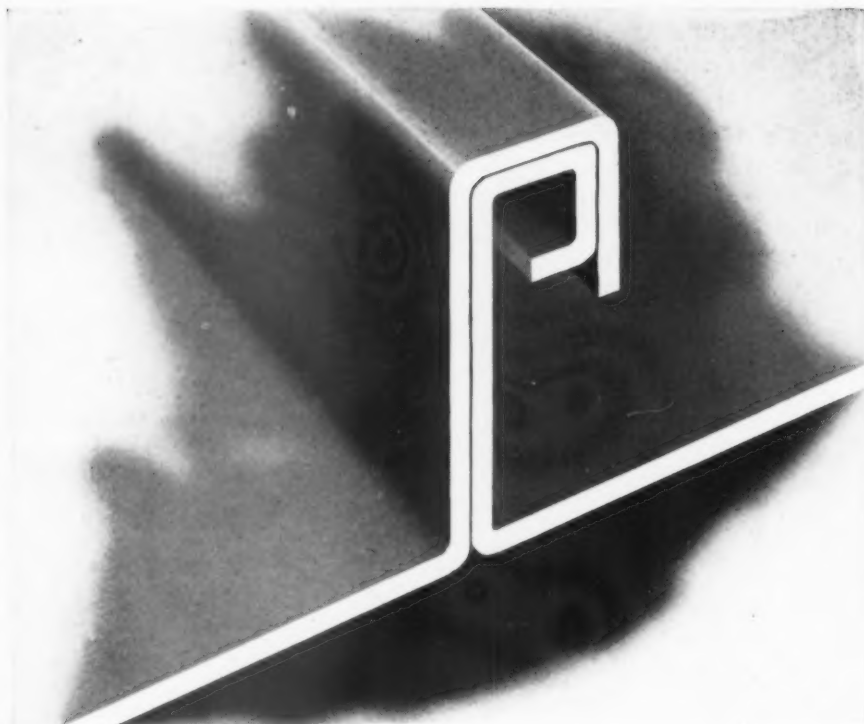


FEDERAL

PRODUCTS CORPORATION

1144 EDDY STREET • PROVIDENCE 1, R. I.

● Dimensional Dial Indicators and Indicating Gages — mechanical, electronic, air, multi-dimensional • Automatic Sorting • Dimensional Machine Control • Combinations of these methods. For the Mechanical, Textile, Rubber, Paper and all industries requiring dimensional accuracy.



This Joint Gives Buildings "Old Age Benefits"

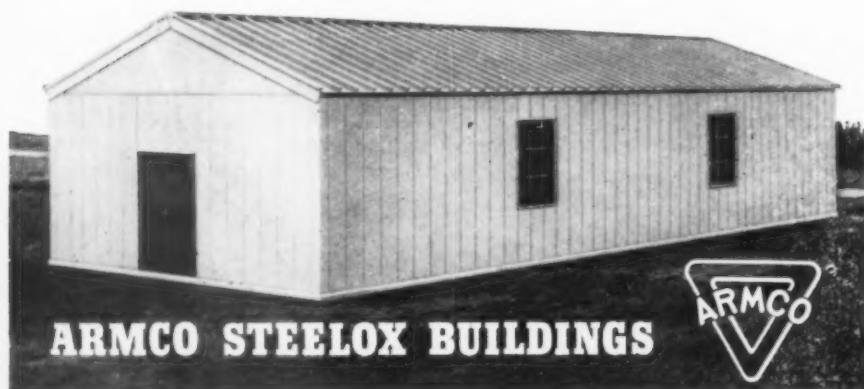
Here is simple, low-cost insurance against the time when ordinary buildings begin to sag and show their age. The patented, Armco joint withstands expansion, contraction and unequal settlement. It keeps Standard STEELOX Buildings trim and youthful.

You'll also reap immediate benefits. With the revolutionary STEELOX method, the jointed panels provide both structural support and a finished surface. Erection is simplified, appearance improved and weathertight construction assured. Unskilled workmen quickly join the panels into a sturdy, maintenance-free structure.

There are other advantages in using

Standard STEELOX Buildings. They are made of Galvanized ARMCO PAINTGRIP Steel and can be painted immediately or left unpainted. STEELOX Buildings have the long life and low upkeep of a permanent structure, yet when necessary they can be quickly dismantled and re-erected at another location without loss of material. All parts are uniformly strong and the all-steel construction is an excellent fire-barrier.

STEELOX Buildings are prefabricated in a wide range of standard sizes to meet your requirements. Write for complete data. Armco Drainage & Metal Products, Inc., 2375 Curtis St., Middletown, Ohio.



NIGP LAUNCHES SURVEY OF GOVERNMENT PURCHASING PRACTICES

The National Institute of Governmental Purchasing has launched a survey of purchasing practices and procedures on a national scale. More than 750 purchasing agents for states, cities, counties, boards of education and other governmental jurisdictions are being canvassed by the National Institute for detailed data on their practices and procedures.

This undertaking by the Institute is the result of long planning and much experience. For a long time, public purchasing agents have been balked by conditions beyond their control. Throughout the country, legislation, rules and regulations have been adopted by governmental agencies which have set the pattern under which public purchasing agents have had to function. The public purchasing agents have individually been unable, in many instances, to cope with restrictive requirements which they may have deemed onerous.

Recently, purchasing agents in industrial and other enterprises have pointed out that the purchasing agent should be high in management councils. They have argued that since purchasing is so vital in operation, the voice of the purchasing agent should be heard at top levels. The public purchasing agents on the whole have suffered similarly. However, due to the fact that regulations in government are imposed at the higher levels, the public purchasing agent has often had little to say concerning his own practices and procedures.

Business men have justifiably complained that the variations in practices of governmental purchasing units are so numerous as to make government business uneconomical to solicit and burdensome to get. The result of this has sometimes been either lack of competition in bidding on governmental offerings or the delivery of inferior merchandise. In any event the condition has not contributed toward getting the most for the tax payer's dollar.

Former New York City Purchase Commissioner Albert Pleydell, who is president of the Institute, has given leadership to the survey because he believes that it is not only in the interest of the public that light be shed on public purchasing practices, but also in the interest of business concerns generally.

The results of the survey will be published in a report by David Joseph at the conference of the Institute at the Hotel Pennsylvania in New York City on September 8-10, 1947. Mr. David Joseph, a New York accountant, has been designated special survey director by the Institute.

The survey is only one of two vital steps that the Institute is taking to put the spotlight on one of the most perplexing problems that confront public purchasing agents today.

The Institute has planned a panel discussion at its conference at which public purchasing agents and representatives of industry will discuss mutual problems. Representatives of large suppliers of goods

(Please turn to page 258)

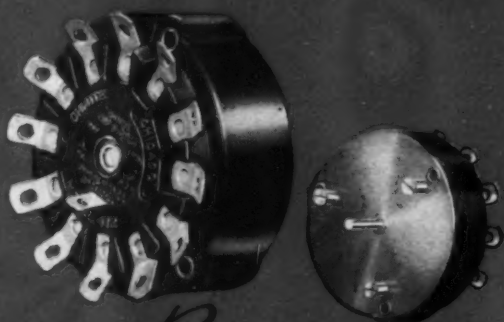
FIRST in discovering the laws of electrodynamics

André-Marie Ampère (1775-1836)

Called the "Newton of Electricity," this brilliant French physicist, inspired by the experiments of Oersted, constructed the first solenoid, the first electromagnet, and in 1820 created a new branch of physics—electrodynamics—and established its basic laws. Today his name is used as the symbol for the unit of electric current.



FIRST in Tap Switches...Today



More manufacturers have standardized on Ohmite high-current tap switches for their products...more companies are buying these tap switches for their own use...than any other make on the market today. The primary reason for this industry-wide preference for Ohmite tap switches is their proved ability to give extra years of unfailing, trouble-free service.

Be Right with...

OHMITE

RHEOSTATS • RESISTORS • TAP SWITCHES

OHMITE

ALL CERAMIC • POWER TYPE
NON-SHORTING

Tap Switches



MODEL 608

FIVE SIZES

MODEL 412

MODEL 312

MODEL 212



MODEL 111

Model 608—100 Amp

Model 412—50 Amp

Model 312—25 Amp

Model 212—15 Amp

Model 111—10 Amp

Compact-Dependable

Here's a line of non-shorting, rotary tap switches that combine high current-capacity and a large number of taps, with unusual compactness. Their sturdy one-piece ceramic bodies provide permanent insulation, as the ceramic is not affected by arcing. The heavy silver-to-silver contacts have a self-cleaning action, and (except for Model 111) are totally enclosed and protected. Switch shafts are electrically dead—insulated by strong ceramic hubs. A positive cam-and-roller mechanism provides "slow-break quick-make" action—particularly designed for alternating current use. Two or three of these Ohmite tap switches can be mounted in tandem to form multiple-pole assemblies.

Send for Catalog and
Engineering Manual No. 40



Write now,
on company
letterhead,
for your
copy of this
helpful 96-
page Ohmite
catalog.

**OHMITE
MANUFACTURING
COMPANY**
4902 Flournoy
Chicago 44, Ill.

OHMITE
RHEOSTATS • RESISTORS
TAP SWITCHES

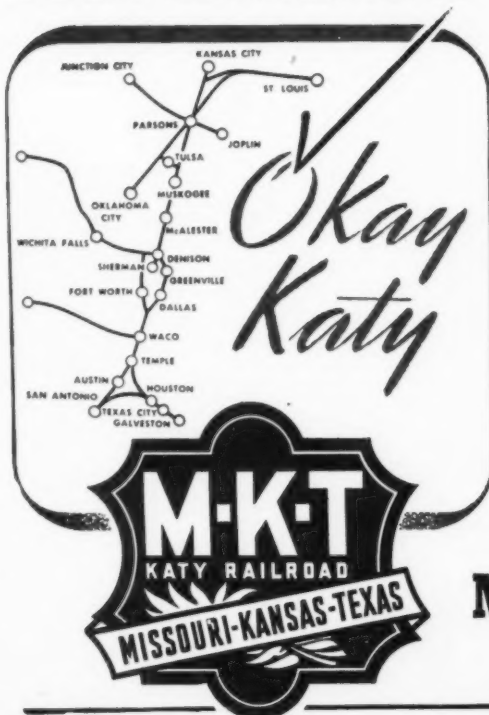
Industry's First Choice

Be Right with...

*more Power
to you*



Soon Diesel Power to deliver the goods



THE PACE WILL BE FASTER-THAN-EVER as a battery of giant new Diesels power crack Katy freights to faster schedules and finer service than ever before.

RADIO-CONTROLLED NEW DIESEL SWITCHERS will speed handling at terminal points.

MIRACLES OF MODERN RAILROADING SCIENCE... courteous, trouble-free handling of all your Southwest shipping needs... still more precious hours clipped from your freight-in-transit time... YOURS from the Southwest corridor's main supply line. OKAY KATY!

MISSOURI-KANSAS-TEXAS LINES

Serving the Southwest

Smart **VUL-COT** *Durable* WASTE BASKETS
TRADE MARK REG. U. S. PAT. OFF.

Reduce costs in handling waste



VUL-COTS save you money! Made of practically indestructible hard vulcanized fibre—they give increased service, reduced maintenance and replacement costs. Guaranteed for 5 years. Attractive colors in convenient sizes and shapes for every use in office and factory. To save money in handling waste—you're wise to insist on VUL-COTS.

*Not available now...
but worth waiting for.*



NATIONAL VULCANIZED FIBRE CO.
 WILMINGTON 99 DELAWARE



POPULAR!

because it's
**portable
 practical
 profitable**

Users like Wells Metal Cutting Band Saws for a number of very good reasons. In the first place these saws, though rugged in design and construction, are compact, self-contained, and readily portable. You can move them to a point most convenient to the work. They take up little floor space. Wells saws are also 100% practical—simple to operate, yet capable of handling a wide variety of work without special fixtures. A third important reason for widespread popularity, is that thousands of users have found them highly profitable. For a small investment, you get a versatile tool that can help you in many ways... in breaking bottlenecks... in getting work out in less time. See your local Wells distributor, or write for details.



WELLS No. 8

CAPACITY
 8" x 16" Rectangular
 8" Diameter Round

Wells Saws

Wells

Products by Wells are Practical

**METAL CUTTING
 BAND SAWS**

WELLS MANUFACTURING CORPORATION
 2400 JACKSON AVE., THREE RIVERS, MICH.

(Continued from page 254)

to public agencies have been invited to state from their point of view the nature of obstacles to good business practice. It is no secret that differing bidding procedures and unreliable inspection practices, have discouraged many reputable business organizations from selling to public agencies. It is also not news that public agencies are "slow pay." These other public purchasing practices have tended to create confusion which is recognized by public purchasing men.

On the other hand, public purchasing agencies have long felt that their problems are not generally understood. They do not enact the laws or adopt many of the rules and regulations under which they must operate. Frequently, they are forced to operate under archaic regulations which hamper and encumber them.

There is an additional distinction that has plagued public purchasing men. They do not have the elasticity of power and action that are so characteristic of private purchasing. Everything else being equal, the private buyer can close a deal without the necessity for worry concerning strict compliance with rigid controlling regulations. The result of this is often that the public purchasing agent is not able to buy what he thinks is the best buy in the situation, but is obliged to buy what is the best buy in the light of controlling regulations.

These and other questions will be aired at the conference.

Coupled with the results of a survey of practices and procedures, the Institute hopes to be armed with information that will provide a basis for a scientific and intelligent approach to the whole question.

We believe that the present activity of the Institute will develop a body of information upon which further study can proceed and upon which proposals for simplification of practices and procedures can be made. The whole enterprise requires the cooperation of public purchasing agents and business men generally.

The survey, sponsored by President Albert Pleydell, is under the general supervision of a committee consisting of Louis J. Cook, Superintendent of School Supplies, New York City Board of Education, chairman; Joseph W. Nicholson, City Purchasing Agent, Milwaukee, Wisconsin; Arthur B. Gathright, Director, Division of Purchasing and Printing, Commonwealth of Virginia.

Clifton E. Mack, Director of Bureau of Federal Supply, will preside at the panel discussion of mutual problems by representatives of industry and public purchasing. Mr. Mack has been at work surveying the field for discussion and will bring out the salient mutual problems of the day.

1 1 1

REPORTS AVAILABLE FROM OFFICE OF TECHNICAL SERVICES

For the convenience of businessmen and researchers, the Office of Technical Services, Department of Commerce, has prepared selective lists of technical reports and documents available from OTS in 13 specialized industrial fields.

(Please turn to page 260)

COSTLY WASTEFUL

SAFE - COMPACT

ON THE BEAM....

WITH TRUMBULL  ELECTRIC PANELBOARDS

For reasons of Safety, Appearance and minimum Space Occupancy, Trumbull recommends modern Column Type Panelboards which fit neatly within the web of an "H" beam in factory buildings.

The narrow type cabinet is installed at the conventional height with its extension trough carried up the beam nearly to the ceiling. At that point a pull-box is installed, making it unnecessary to carry long main and branch circuit conduit runs to the panel . . . an advantage in wiring time, material costs, and neatness.

For lighting and/or appliance branch circuit protection, Trumbull has standardized Column Type Panels to fit both 8" and 10" beams. Type M Multi-breaker units provide for a maximum of 42 single pole or 20 double pole branch circuits, ranging from 15 to 50 amperes.

"On the Beam" with Trumbull Column Type is *good* Panelboard installation.

THE TRUMBULL ELECTRIC MANUFACTURING CO.
PLAINVILLE, CONNECTICUT

OTHER FACTORIES AT NORWOOD, OHIO • LOS ANGELES • SAN FRANCISCO • SEATTLE



**SAVE
TIME!**

INTERNAL WRENCHING

On production assembly—simple or intricate fastening jobs—Holo-Krome Fibro Forged Socket Screws, the Completely Cold Forged Screws made from special analysis alloy steel and scientifically heat treated, are speeding up assembly because of their Internal Wrenching feature. Holo-Krome Keys fit quickly into the Completely Cold Forged sockets and positive tightening is assured. . . . All Holo-Krome Socket Screw Products are guaranteed to give Unfailing Performance . . . Specify "Holo-Krome."

HOLO-KROME

Sold only
thru
HOLO-KROME
authorized
INDUSTRIAL
DISTRIBUTORS.

fibro forged

INTERNAL
SOCKET  **SCREWS**
WRENCHING

THE HOLO-KROME SCREW CORP., HARTFORD 10, CONN., U. S. A.



(Continued from page 258)

The lists cover the following fields: plastics; vibrators, tampers, pneumatic tools, and drills; jet engines; psychology; infrared; ceramics; magnetic tape machines (Magnetophone); adhesives; paper; deterioration; guided missiles; iron ores; and forestry and wood products.

Each of the lists cites author, title, price, and reference number of the reports included. For example, the list on deterioration cites about 200 OTS reports. These include reports of studies on tropical deterioration made by various branches of the armed services and the Office of Scientific Research and Development, and various technical documents acquired by OTS investigators in Germany.

The lists contain only the most important materials available from OTS in each of the selected fields. A complete listing of all available documents is contained in OTS' weekly *Bibliography of Scientific and Industrial Reports*. The weekly bibliography is obtainable from the Superintendent of Documents for \$10 a year.

Requests for copies of the selective lists should be addressed to Reference Service, Office of Technical Services, Department of Commerce, Washington 25, D. C.



NEW SAE HANDBOOK FOR 1947 THINNER, LIGHTER, LARGER EDITION

One-third thinner and a half-pound lighter, yet presenting 10 per cent more text, the 1947 SAE Handbook published by the Society of Automotive Engineers makes available war-developed data and new standards plus material revised from 36 prior editions.

Featured among new data are the first specifications for hydraulic brake fluids, standards for involute serrated shafts, nomenclature and definitions for three types of crankcase oil, standards for pipe, filler, and lubrication fittings, specifications for automotive steel castings, and general information on welding electrodes and on copper and silver brazing.

The lighter, more convenient volume, popularly known by automotive engineers as their "Technical Bible," is printed on lighter paper, 21 tons of which went into the book. Continuous page numbering has replaced the confusing skip-number system.

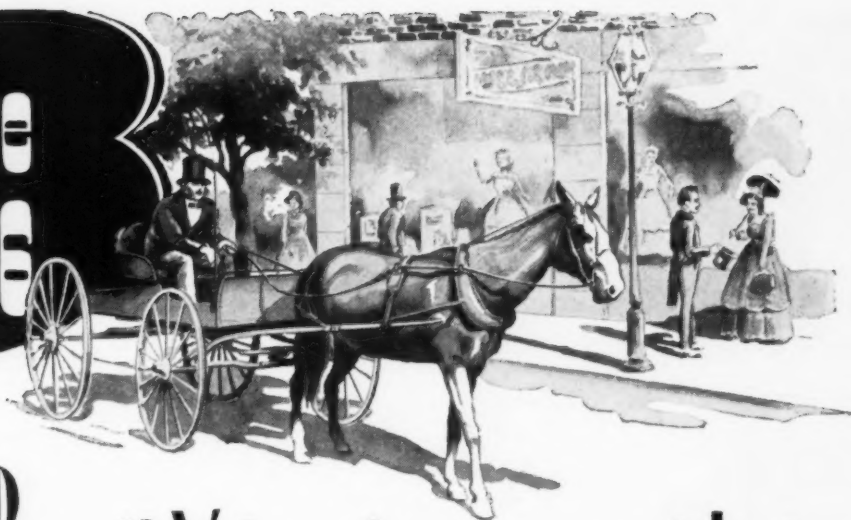
Each SAE member receives a copy gratis and may buy additional copies for \$5.00 each. Price to non-members is \$10.00 per copy.

Further to facilitate utilization of SAE Handbook material, six pamphlets, each separately-printed from a section of the Handbook, have been made available by SAE Special Publications Department as follows:

SP-30, SAE Iron & Steel Standards and Specifications. Data on alloy steels, automotive steel castings, malleable and gray irons, hardenability tests, hardness numbers, inclusions, magnet particles, physical properties, and heat treatment. Members, \$1.50; others, \$3.00.

(Please turn to page 262)

Since 1846



Powell Valves have served Industry ...and served it well



Small size 200-pound Bronze Gate Valve for steam, water, oil or gas. Has inside screw rising stem, union bonnet and renewable, wear-resisting "Powellium" nickel-bronze disc.



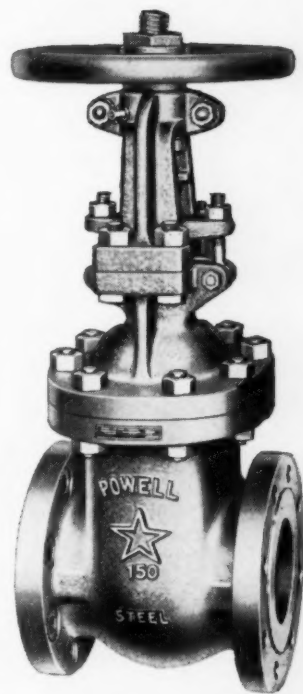
Large Iron Body Bronze Mounted Globe Valve for 125 pounds W.S.P. Made in sizes 2" to 16", inclusive. Has outside screw rising stem, bolted flanged yoke and regrindable, renewable bronze seat and disc. Also available in All Iron.

'Way back in the "horse and buggy days", the first regrinding globe valve was produced and patented by Powell. And ever since then Powell has been a leader in the field of industrial flow control equipment.

As amazing as the changes in methods of transportation have been since 1846, the progress of industry has been well nigh incredible.

Through more than a century of keeping pace with the flow control requirements of each new industrial development, Powell has built such a complete line that today there's a Powell Valve to meet every demand of modern industry.

The Line now includes Bronze and Iron Valves of every required type, design and size; Cast Steel Valves of every type, in pressure classes from 150 to 2500 pounds, inclusive. And, to meet the demands of the Chemical and Process Industries for corrosion resistant valves, Powell makes a complete line, including many special designs, in the widest range of pure metals and alloys ever used in making valves.



Class 150-pound Cast Steel Gate Valve with bolted flanged yoke, outside screw rising stem and taper wedge solid disc.

The Wm. Powell Company, Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES



A name--and a promise

Hanson-Van Winkle-Munning believes in a stabilized price structure. On behalf of our customers and ourselves we are operating on a firm price basis.

In the belief that decreased prices will benefit the industry and lead to increased developments and future expansion, Hanson-Van Winkle-Munning promises to hold prices wherever possible; reduce prices as production costs warrant; cooperate fully toward the economic good of the industry and the country.

HANSON-VAN WINKLE-MUNNING COMPANY MATAWAN, NEW JERSEY

Manufacturers of a complete line of electroplating and polishing equipment and supplies

PLANTS: MATAWAN, NEW JERSEY • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • CHICAGO • CLEVELAND • DAYTON • DETROIT • GRAND RAPIDS
MATAWAN • MILWAUKEE • NEW HAVEN • NEW YORK • PHILADELPHIA • PITTSBURGH • ROCHESTER
SPRINGFIELD (MASS.) • STRATFORD (CONN.) • SYRACUSE



2441



ARMALLOY SOCKET WRENCHES

Armalloy Socket Wrenches are made of a selected grade Alloy Steel, heat treated, gauged to closest tolerance and beautifully finished in Chrome Plate.

Furnished in five sizes: $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" square drive with a complete assortment of drop-forged ratchets and driving units.

Cataloged, Stocked and Sold singly or in sets by leading Industrial Distributors everywhere.



ARMSTRONG BROS. TOOL CO.

303 N. Francisco Ave.

"The Tool Ho'der People"

Chicago 12, U. S. A.

Eastern Whse. & Sales Office: 199 Lafayette Street, N. Y. 12, N. Y.
Pacific Coast Whse. & Sales Office: 1275 Mission Street, San Francisco, California

(Continued from page 260)

SP-31, SAE Non-Ferrous Standards and Specifications. Covers cast and wrought aluminums and magnesiums, solders, bearing and bushing alloys, copper base alloys, zinc die castings, sintered powder metal bearings, electroplating processes, and heat-, corrosion-, and electric-resistant alloys. Members, \$1.25; others, \$2.50.

SP-32, SAE Standards for Rubber Compounds, Hoses, Brake Cups, and Brake Fluid. Classifications and physical requirements plus standard specifications, including those for hydraulic brake fluids. Members, \$1.00; others, \$2.00.

SP-33, SAE Standards for Storage Batteries for Motor Vehicles. Standard battery sizes, capacities, and ratings, supplemented by data on life tests and testing procedure. Members, 75 cents; others, \$1.50.

SP-34, SAE Standards for Lighting Equipment and Photometric Tests. Laboratory test specifications for automotive lighting equipment; tables on lamp bulbs and sealed-beam units; connectors, plugs, and caps; general code for headlamp inspection; suggested from vibration test machine. Members, 75 cents; others, \$1.50.

SP-35, SAE Standards for Splines and Serrations. Detailed dimensions, basic formulas, supplementary information on standard involute and straight-side spline and involute shaft serrations. Members, \$1.00; others, \$2.00.

Copies of SAE 1947 Handbook are available from the Society of Automotive Engineers, 29 West 39th St., New York 18, N. Y., and of the separate pamphlets from SAE Special Publications Department, same address.

SUMMER SAFEGUARDS FOR SOLVENT DEPARTMENTS

Special attention should be given to the solvent department when preparing the plant for summer temperatures. Since solvent volatility increases with higher temperatures, there is likely to be more solvent vapor in the workroom air during warm weather, unless sufficient ventilation is provided. Dermatitis difficulties also may increase at this time.

Most solvent departments are equipped with mechanical ventilation throughout the year. During the summer months care must be taken so that the tendency of employees to open windows or change the exhaust rate, to increase personal comfort, does not interfere with the mechanical ventilation. The opening of a window near a degreasing tank, for example, may set up a current of air which will reduce the efficiency of the exhaust and blow vapor into the workroom. Guards may be set up at the side of the tank to permit opening windows without disturbing the ventilating system.

Some solvent departments may depend upon natural ventilation, such as windows, skylights, etc. There are times during the summer when such ventilation is likely to prove inadequate, however, especially on days when there is little breeze. For small solvent operations it may be possible to provide additional ventilation.

(Please turn to page 264)

CHICAGO DAILY NEWS, Tuesday, March 25, 1947. ★★★ 27

EVERYBODY'S BUSINESS

Rivals Help Firm Get Back on Feet After Fire

BY PHIL S. HANNA.

Those who say there isn't any sentiment in business might consider what sentiment did to help a burned out West Side manufacturer hold his trade and quickly get back into production.

About 4:30 a.m. on Monday, March 3, the Accurate Spring Manufacturing Co., at 3811 W. Lake st., had a real fire. It was called a total loss. The brick walls were left standing but that was about all. All records and office equipment were destroyed with the exception of those in the vault.



PHIL S. HANNA.

The president of the company, F. D. Weber, happened to be in Florida but the vice-president and general manager, A. A. Bonde, was quickly on the job.

BY NOON OF THE DAY of the fire, with the help of the Illinois Bell Telephone Co. and the Graemere Hotel, five trunk lines were operating at the hotel on the company's regular telephone number. Bonde and his aids were contacting customers all over the country.

Within a few hours after the fire five competitors in Chicago had volunteered to produce springs for the Accurate company. Some offered to use Accurate personnel to give the company full opportunity to meet the particular needs of its customers.

The Galter Manufacturing Co., 711 W. Lake st., one of Accurate's customers and a manufacturer of cameras and lighters, turned over floor space to Accurate for rebuilding tools and permitted Accurate personnel to use its tool-making machinery. Another manufacturer offered the use of brand-new machines.

A MEETING OF THE Chicago Association of Spring Manufacturers was called to help Accurate get back into production for it was realized how seriously the fire had endangered the close production schedules of the automobile industry, a big user of springs.

On Monday, March 10, seven days after the fire, the Accurate company set up temporary headquarters in a plant at 1474 W. Hubbard st., leased from the Nu-Tone, Inc., manufacturers of chimes. Nu-Tone was moving and Accurate took over an unexpired lease, a number of punch presses and tool room equipment.

On the 10th day after the fire contracts were placed with L. J. Graf Construction Co. to rebuild the factory at 3811 W. Lake st.

MORE THAN 150 EMPLOYEES had been called back to work. The company's branch plant at Fowler, Indiana, was doing double duty.

"Call us on our new telephone, MONroe 1145," says a letter from President Weber to his customers under date of March 12 (nine days after the fire). "It is likely we can take care of your requirements beginning April 10."

"Why all this co-operation?" I asked of a man who knows the background. "Oh," he replied, "Weber put in 15 years building good will among customers, his competitors and his own employees—and when he got into trouble everybody wanted to help him. It's a Chicago habit, I believe."

Stocks Dr Lower on

Li

NEW
erally
today
on the
light.
The
ed aft
eries v
erate
final
closed
declin
two p
over f
proxim
other
for the

ADV

Union
ern, T
Joy M
Ame
most o
\$200,00
on the
Bethle
Goodri
J. I. C
Chemi
ley, American Can a
Union "A."

PUBLIC interest still minimum with brokerag
ers holding aloof becau
tism regarding the bus
ture, foreign affairs,
and a number of wage
ations threatening corpo
its.

Professional contingen
ed some buying on the
the drying up of liquidat
the list was in shape f
rebound if given pr
couragement. Earnings
dends, for the most part
nored.

Most bonds got now

Stocks Recei Unlisted Tra Rights from

PHILADELPHIA — (Securities and Exchange
sion today approved a
tion by the Detroit S
change to extend unlist
privileges to the unlist
securities:

The \$1 par common
ghany Corp., American
Inc.; Niagara Hudson Po
Sunray Oil Co., and
Corp.

THE \$2.50 par comm
American Airways Cor
\$5 par common of Ster
Inc., and Warner Bros.
Inc., the \$10 par comm
tional Biscu

z!

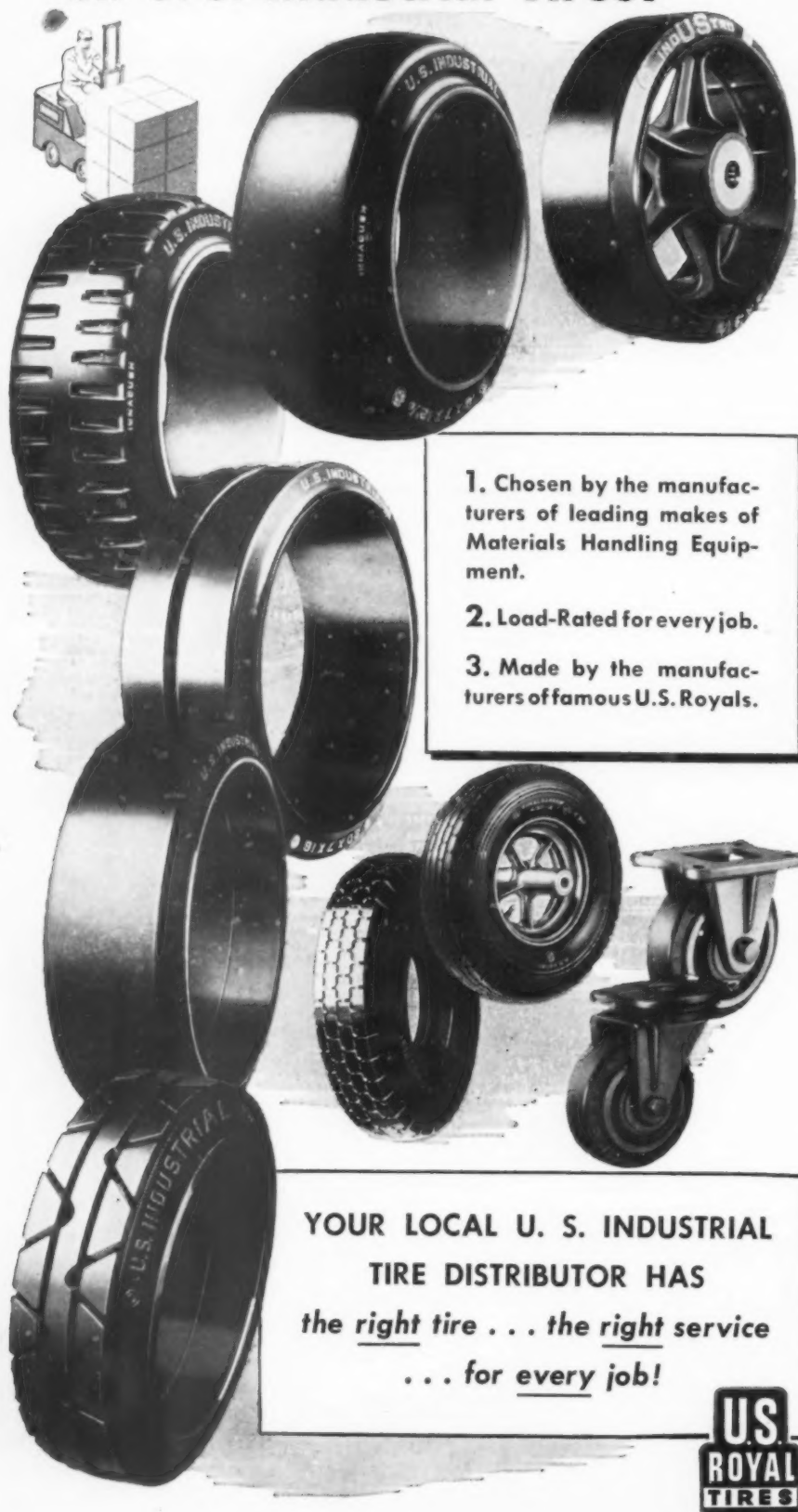
Accurate
Springs

Send for a copy of the Accurate "Hand-
book of Technical Data on Springs"
which contains valuable data on de-
sign formulation and load deflection.

UNITED STATES RUBBER COMPANY

SERVING THROUGH SCIENCE

IT PAYS to put your trucks on U. S. Industrial Tires!



1. Chosen by the manufacturers of leading makes of Materials Handling Equipment.

2. Load-Rated for every job.

3. Made by the manufacturers of famous U.S. Royals.

YOUR LOCAL U. S. INDUSTRIAL TIRE DISTRIBUTOR HAS
the right tire . . . the right service
. . . for every job!

U.S. ROYAL TIRES

(Continued from page 262)

sible to overcome this difficulty by providing fans in the workroom. It is important, however, to be sure that the fans are not located where they will increase the evaporation of solvent, or blow solvent vapors into the breathing area of workers. In most cases, local exhaust ventilation is desirable.

A survey of ventilating equipment with these factors in mind should be made before hot weather starts. The Division of Industrial Hygiene in many states provides ventilating engineers who can assist industry in making this survey.

During the summer months, the incidence of dermatitis may rise because of increased exposure of the skin to various irritating substances, including organic solvents. Sleeves are rolled up, protective clothing may be discarded because it is uncomfortable, and increased exposure to sun may make the skin somewhat more susceptible to irritation. Moreover, protective creams which may prove of some value during winter months are rapidly removed by perspiration.

Steps which may be taken to reduce dermatitis during the summer include: provision for frequent washing with a mild soap, followed by application of protective or lubricating cream; an adequate supply of comfortable work clothing to permit frequent changing, plus the use of light gloves and aprons of suitable materials to protect against solvent; provision of a shower for use at the end of the shift; education of the employee in the importance of cleanliness to avoid skin difficulties.

♦ ♦ ♦

THE "GREY MARKET" IN STEEL SHEETS

The so-called "grey market" in steel sheets is largely a myth and transactions at prices over prevailing mill levels have been infinitesimal in volume, according to a survey by Commodity Research Bureau, Inc. in its new publication, *The Export Buyer*.

Entitled "Daisy Chain of Steel," the survey finds that the shortage of steel sheets has been and still is acute and that "open market" prices have spiraled. However, the activity has been confined almost entirely to brokers' conversations and "daisy chain" activity consisting of brokers' "trading" in steel sheets that do not exist.

"Steel mills have made steel as rapidly as possible and have allotted their production to regular customers for legitimate manufacturing purposes. The sin of the steel mills, if any, is in ignoring the situation (daisy chains) in their public relations programs," according to the survey.

Countless thousands of would-be steel brokers, including attorneys, unemployed individuals, insurance agents, retired business men, and even housewives have injected themselves into steel merchandising, lured by the hope for a quick killing.

"Principal centers of steel daisy chain activity are New York, Pittsburgh, Chi-

(Please turn to page 266)



THE MOTOR THAT WAS "Snowed Under"

A simple job for the *right* motor—operating a ring-roll mill in a limestone crushing plant . . . but the *wrong* motor was applied. The picture above shows the destructive power of the abrasive stone dust on a fifteen horsepower open type motor which was brought into one of our service shops for repairs. The stator coil insulation was completely destroyed, the bearings were badly worn, and the metal core in the stator and rotor was polished to a mirror finish!

For use under this operating condition, Wagner engineers would have recommended a totally-enclosed fan-cooled motor, which gives continuous service under the most severe operating conditions—where dust, dirt, abrasive materials, fumes, or moisture are present—and requires no special attention or maintenance.

If you use motors, it will pay you to investigate Wagner—a complete line . . . built by engineers who know how to build quality motors for every application. Users of Wagner motors also profit by our quick, convenient, nationwide service facilities.

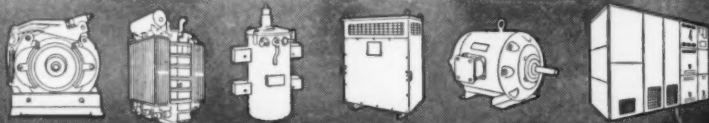
Contact any of our twenty-nine branch offices, located in principal cities and manned by trained field engineers ready to give you advice on all of your motor problems. Bulletins on the complete line of quality motors will be sent upon request. Address Wagner Electric Corporation, 6360 Plymouth Avenue, St. Louis 14, Mo.



Pictured above is a Wagner totally-enclosed fan-cooled motor. Wagner makes a complete range of motors for every application.



Consult Wagner Engineers on all Electric Motor Problems.



BRIDGE BRAKES • POWER AND DISTRIBUTION TRANSFORMERS • MOTORS • UNIT SUBSTATIONS

ELECTRICAL AND AUTOMOTIVE PRODUCTS

FOR ALL THESE
ADVANTAGES

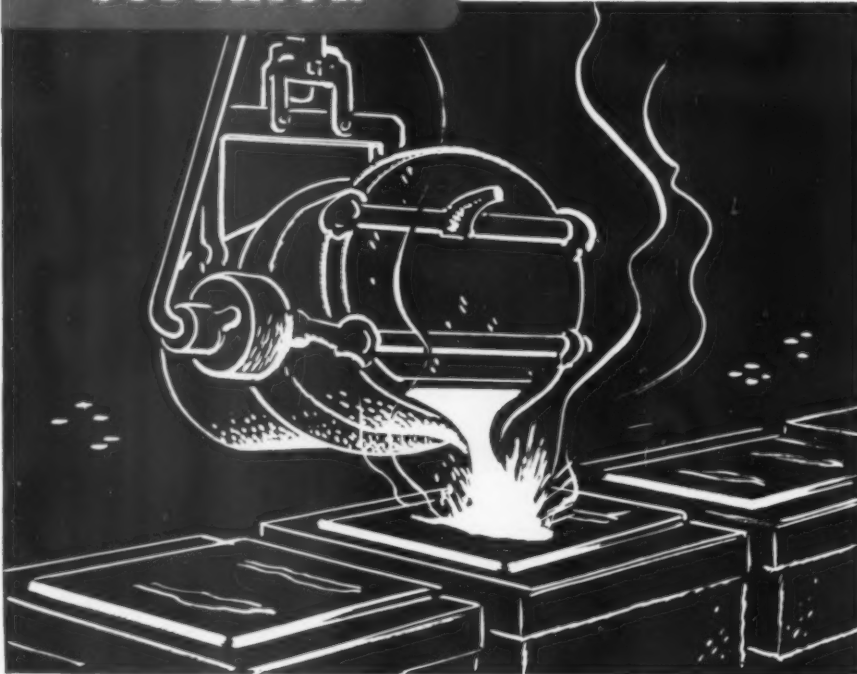
Always call
SUPERIOR

METALLURGICAL CONTROL
Assures highest quality of finished product.

MACHINABILITY
Uniform grain structure assures easy machining.

ACCURACY
Experience and "know-how" assure uniform accuracy.

CLEAN SURFACE
Superior castings have clean, smooth finish.



SUPERIOR CASTINGS

MEET THE MOST EXACTING SPECIFICATIONS

GRAY IRON • ALLOY IRON • ELECTRIC FURNACE IRON

You can always depend upon Superior's continuous "quality-control" for castings which meet the most exacting specifications. Consistent uniformity of grain structure and cross section density produce castings with no hard spots to dull high speed tools. Superior castings may be milled, drilled, turned and otherwise machined easily and economically. That's why buyers of castings always say, "it pays to call Superior."

SUPERIOR FOUNDRY, INC.
3542 EAST 71st STREET • CLEVELAND 5, OHIO

SUPERIOR

MIchigan 3078

(Continued from page 264)

cago and Detroit. Even though steel making is a highly technical art and those who traditionally market this product are skilled technicians, this does not dissuade amateurs from their self-assigned missions of steel merchandising. More than 99% of those who have injected themselves as brokers in the steel business have no idea of the difference between a cold rolled and hot rolled sheet," according to the survey.

Steel daisy chains are described as being similar to chain letters with the exception that participants spend thousands of dollars in telephone and telegraph expense plus considerable valuable time. The result is that virtually hundreds of thousands of tons of "phantom steel" are continually being offered from one broker to another and eventually to consuming manufacturers.

Usually, the source cannot be traced but some steel daisy chains are started by irresponsible individuals, misguided promoters and, at least in one case, by a harmless lunatic, recently released from an institution.

1 1 1

SPARK RESISTANT RUBBER FLOORING NOW AVAILABLE

Static conductive and spark resistant rubber flooring, which during the war was used in munition plants and gun turrets on the Navy's fighting ships, is now available for peacetime uses, according to an announcement by the Chemical Products Division of the Goodyear Tire & Rubber Company, Akron, Ohio.

This conductive flooring, according to Otto C. Pahline, manager of the company's Flooring and Builders' Supply department, is specially adaptable where quietness, cleanliness and safety are of great importance.

Black in color, the flooring material is impregnated with fine wires running parallel throughout the length of each strip of material, one in the center and two others spaced 12 inches on each side of the center wire. The longitudinal wires are connected at each end of the strip with master ground wires, which make the floor a complete, separate electrical unit. Non-conductive cove base and collars insulate the flooring from the walls and from radiator pipes and similar metal.

Pahline explained that it is generally recognized that a material with a resistance up to 1,000,000 ohms is sufficiently conductive to prevent the building up of static charges on the material. However, he said, if the flooring material is too highly conductive, there is danger that sparks will discharge from a highly charged body in close proximity to the floor.

Goodyear's conductive flooring, he said, has a maximum resistance of 250,000 ohms in order that it be kept both spark resistant and static conductive.

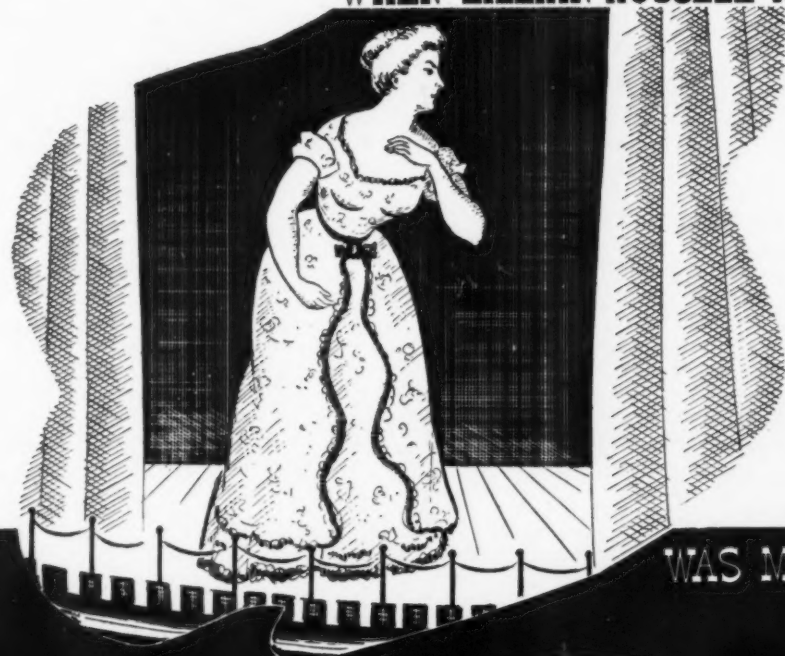
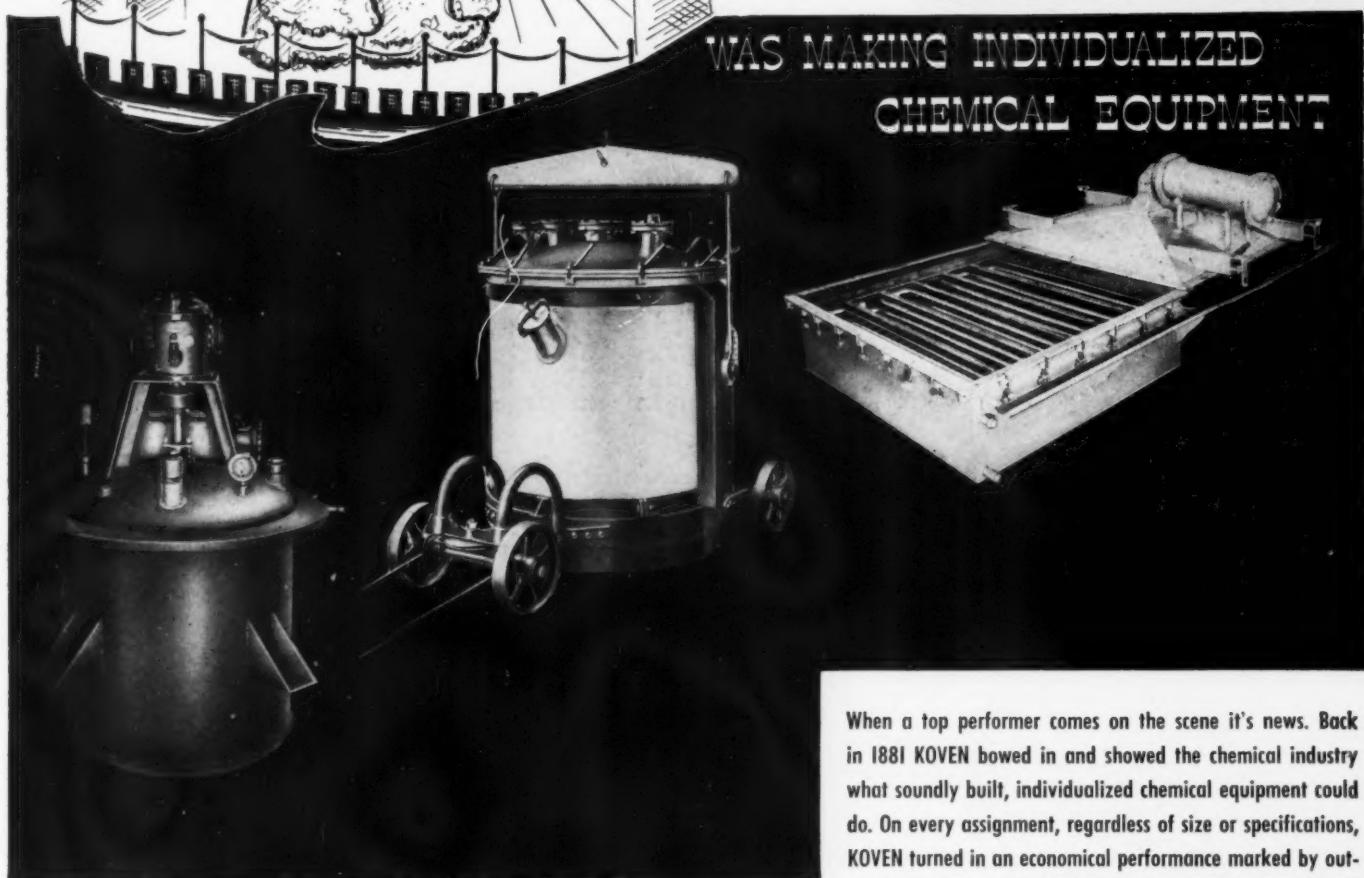
The flooring may be installed on old and new concrete and wood bases on or above grade.

BACK IN THE 1880'S

WHEN LILLIAN RUSSELL MADE HER FORMAL DEBUT

AT TONY PASTOR'S

BOWERY VARIETIES

**KOVEN**WAS MAKING INDIVIDUALIZED
CHEMICAL EQUIPMENT

PLANTS:

Jersey City, N.J. Dover, N.J.

L.O. KOVEN & BRO. INC.

154 OGDEN AVE. JERSEY CITY 7, N. J.

When a top performer comes on the scene it's news. Back in 1881 KOVEN bowed in and showed the chemical industry what soundly built, individualized chemical equipment could do. On every assignment, regardless of size or specifications, KOVEN turned in an economical performance marked by outstanding efficiency. We build to meet your needs, incorporating in each job our diversified experience gleaned through years of delivering superior individualized chemical equipment. Consult with a KOVEN trained representative who assures you of up-to-the-minute counsel. Call or write KOVEN today.

KOVEN equipment, in all commercial metals and alloys, includes: pressure vessels, extractors, mixers, stills, condensers, kettles, tanks, chutes, containers, stacks, coils.

KOVEN FOR INDIVIDUALIZED CHEMICAL EQUIPMENT SINCE 1881

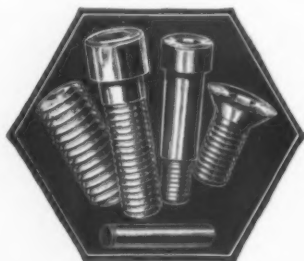


Handiest where *hard-to-hold*

The small-size screws you so largely use can be held on the end of an Allen driver and started in the tapped hole instant! Or they may be held on an Allen Hex Key and turned in places where thumb-and-finger work awkwardly if at all. *Fast in assembling!*

And for set-ups hard to hold under vibration, "Allens" have (1) **STRENGTH** for tight wrenching; (2) **Accurate threading** to a high Class 3 fit, for a high degree of frictional holding-power.

Your local Industrial Distributor supplies also Allen Socket Head Cap Screws, Flat Head Cap Screws, "Tru-Ground" Shoulder Screws and "Tru-Ground" Dowel Pins. Ask him for samples or demonstration.



THE ALLEN MFG. COMPANY
HARTFORD, CONNECTICUT, U. S. A.

CATALOG OF SAFETY AND INDUSTRIAL HEALTH STANDARDS

A catalogue containing a list of approximately 200 standards covering safety and industrial health is now available to safety engineers, purchasing agents, and others interested, according to Cyril Ainsworth, technical director of the American Standards Association, 70 E. 45th Street, New York, N. Y.

The twenty-page booklet not only lists the standards, but gives a brief description of their contents to make it easier for those interested to locate standards concerning their own particular field.

"The development of these safety standards under the ASA is evidence of one particular phase of industrial self-regulation that has met with an unusual degree of success mainly because industrial representatives have a direct part in their formulation," the forward to the catalogue explains.

"Industries, like people, are more willing to abide by regulations which they set up for themselves than they are to follow rules laid down by some external agency.

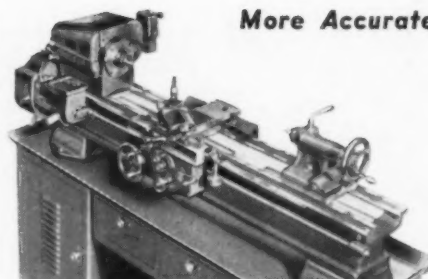
"Because the provisions included in these standards represent a crystallization of the accumulated wisdom of industrial experience and are the result of painful trial and error in many cases, they constitute a symposium of the best methods of meeting the technical problems of safety, and therefore they become the guides for industry and are voluntarily adopted and followed."

The ASA Safety Code Correlating Committee which has been in charge of the development of these standards, is headed by W. R. Smith, safety engineer of the Public Service Electric and Gas Company, Newark, N. J., representing the Electric Light and Power Group. Twenty six technical and trade organizations are represented on the correlating committee.

1 1 1

CARBIDE GUIDE RINGS PRICE CUT

Announcement is made of price reductions on cemented carbide standard guide rings, with reductions in the prices in the smaller quantity brackets ranging as high as 40% and even 50%, by the Carboloy Company, Inc., Detroit, Mich. In the lowest quantity range, for instance, (from 1 to 49 units), prices now run from 26¢ for the GR-1 ring to \$1.88 for the GR-10 ring, as compared with the former range of from 55¢ to \$3.52. The minimum prices of the GR-1 and GR-2 rings have been reduced from 18¢ and 16½¢ respectively to 13½¢ for either item. In addition, the quantity of standard guide rings required to earn the minimum price has been lowered from 3000 pieces to 1000 for all sizes of rings. Thus GR-10 rings can now be secured in lots of 1000 or more at a cost of 98¢ instead of at the former price of \$1.18 per ring in lots of from 1000 to 1999—a saving of approximately 18%.



More Accurate

New SHELDON TRB-S56 Precision Lathes

There is a degree of accuracy built into the new \$1000.00 Sheldon TRB-S56 Precision Lathe heretofore found only in a few of even the most costly lathes. For example, spindle bearings are "Zero Precision," the very finest, closest tolerance tapered roller bearing manufactured. The heavily strutted, 1-piece bed has a 2 V-ways and 2-flat ways ground on special bed grinder and held to the closest tolerance of lateral and parallel alignment. The lead screws are milled on the most accurate special lead screw milling machine.

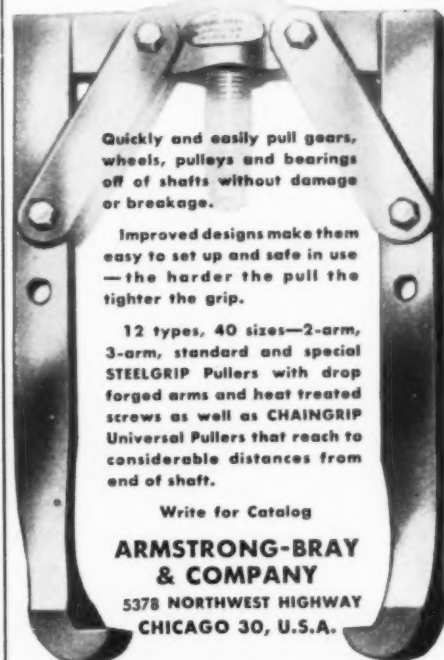
In the Sheldon TRB-S56 modern engineering, extensive tooling combined with the finest special machinery—a modern machine tool plant with modern equipment, modern manufacturing methods—give this small (11¼" swing, 1" collet capacity, 56" bed, 8 speed—50 to 1350 r.p.m.), convenient, moderate priced lathe, the permanent accuracy and features, heretofore found only in more cumbersome and costly lathes.

Write for circular



SHELDON MACHINE CO. Inc.
4253 N. KNOX AVE. CHICAGO 41

ARMSTRONG-BRAY GEAR and WHEEL PULLERS



Quickly and easily pull gears, wheels, pulleys and bearings off of shafts without damage or breakage.

Improved designs make them easy to set up and safe in use—the harder the pull the tighter the grip.

12 types, 40 sizes—2-arm, 3-arm, standard and special **STEELGRIP** Pullers with drop forged arms and heat treated screws as well as **CHAINGRIP** Universal Pullers that reach to considerable distances from end of shaft.

Write for Catalog

**ARMSTRONG-BRAY
& COMPANY**

5378 NORTHWEST HIGHWAY
CHICAGO 30, U.S.A.



NAME PLATE PROBLEMS?

*Investigate the low-cost
high-speed application of
tough all-color, all-surface*

MEYERCORD

DECAL NAMEPLATES



Billions of Meyercord Decals are in use throughout the world. They provide a colorful, highly legible, permanent and easy method of applying any product identification, operating instructions, patent data, lubrication guides, and wiring diagrams. They save time, labor, and materials.



Meyercord Decal nameplates are vibration-proof, eliminate protruding edges and sharp corners, require no screws or rivets for application. Meyercord Decals are durable, washable, and can be produced in any size, colors or design. Popular water methods permit fast application.



Easy-to-use solvents or cements are specified when required. Meyercord research has developed Decals resistant to acid, petroleum products, alkali, alcohol, abrasion, temperature extremes and moisture. Can be used on rough, smooth or crinkled surfaces, flat, concave or convex.



Over fifty years of actual use has demonstrated that genuine Meyercord Decals retain their color and legibility for years without cracking or peeling. There is no commercial surface known for which Meyercord engineers cannot design a Decal for complete and perfect surface adhesion.



Meyercord Decals offer a new efficiency in product identification. Years of experience in setting up high-speed production lines for the application of Decal nameplates have developed many new and different techniques, which are now available to Meyercord customers.

**Technical consultation and
designing service is avail-
able on request. Address
inquiries to Dept. 61-6**

Founder Member Lithographic Technical Foundation

The MEYERCORD Co.

World's Largest Decal Manufacturer

5323 W. LAKE ST.

CHICAGO 44, ILL.



HEYWOOD-WAKEFIELD COMPANY

GARDNER, MASSACHUSETTS

"How we prevent costly oversights in Purchasing"



No more need to search in several files for purchasing data. Complete facts on each item are concentrated in one easy-to-find, easy-to-maintain Kardex visible record.



Note the signals on these special folders. They provide thorough and accurate purchase order follow-up.

"TODAY'S conditions demand tighter-than-ever control of purchasing, to prevent oversights and assure our ability to keep delivery promises," says the Heywood-Wakefield Company, famous century-old maker of furniture, railway seating and other equipment. "With products as diverse as ours, each requiring many different materials and component parts, we find our Kardex Purchase History and Quotation Record tremendously helpful. Complete data on any individual item can be found in a few seconds, all in one convenient visible record which lists suppliers, past purchases and quotations."

FOLLOW-UP FOLDERS—A FURTHER AID

Current transactions are controlled through Heywood-Wakefield's use of Remington Rand follow-up folders with visible signals that call attention to any purchase that is falling behind schedule. Requisition, correspondence, acknowledgments, receiving notices for partial shipments, etc., are kept in the same folder, thus facilitating follow-up action.

This is just one example of how Remington Rand systems techniques can be applied—and profitably—to present business problems. You'll find dozens of other constructive suggestions in the book offered below. May we send you a copy?

Remington Rand

THE FIRST NAME
IN BUSINESS SYSTEMS



Valuable Information
—Free—Send Today

SYSTEMS DIVISION

315 FOURTH AVE • NEW YORK 10

Send, free, a copy of "Purchasing Department Records and Routines." (X 541A)

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

PUR 647

GENERAL OFFICE SUPPLY CO.-NEWARK, N. J.
FORM NO. 6028-P-R

ORDER NO.	DATE	AMOUNT	PRICE	RELEASES
22222	2/25/47	10000	3.790M	5M Plant 3/1/47

PPInc	DATE	QUAN. RCD.	BAL. DUE
Overall size including binding edge	3/4/47	5000	5000
10-1/4" x 4-5/8"	4/3	5000	C

ORDER NO.	DATE	AMOUNT	PRICE	RELEASES
22223	2/25/47	10000	3.77M	5M Plant 3/1/47

DATE	QUAN. RCD.	BAL. DUE
3/17	3000	7000
3/22	3000	4000
4/18	4000	C

X Corp.

DATE FOLLOW UP	PART NAME	PART NUMBER
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	ELBOW (BRASS)	39799

This is the Purchase Record. Example shows control over a requisition for 20,000 parts ordered from two sources. One source delivered on time and the other was late. All purchase order data is posted hereon.

Price and discount data are blocked out on the copies for the receiving department and the expediter.

In addition to standard shipping instructions, the purchase order contains the following tax clause: "Federal Tax. Exemption Certificate. (Purchases for further manufacture under Section 620 [1]). The undersigned hereby certifies that he is a manufacturer or producer of articles taxable under Title IV of the Revenue Act 1932, as amended, and holds certificate of registry No. 313 issued by the Collector of Internal Revenue at 5th district of Newark, N. J., and that the article specified in the accompanying order will be used by him as material in the manufacture or production of, or as a component part of an article or articles to be manufactured or produced by him enumerated in such Title IV.

"It is understood that for all the purchases of such Title IV the undersigned will be considered the manufacturer or producer of the articles purchased hereunder, and (except as especially provided by law) must pay tax on resale or use, otherwise than as specified above, or the articles purchased hereunder, it is further understood that the fraudulent use of this certificate to secure exemption will subject the guilty parties to the penalties provided by law."

Contract Conditions

The reverse of the purchase order, carries the following "Conditions":

1. **Packing and Cartage.** No charges will be allowed for packing and cartage unless agreed upon in writing.

2. **Inspection.** Goods subject to our inspection on arrival, notwithstanding prior payment to obtain cash discount.

3. **Rejected Goods.** Goods rejected on

account of inferior quality, workmanship, or dimensions, will be returned to you with charge for transportation both ways plus labor, reloading, trucking, etc., and are not to be replaced except upon receipt of written instructions from us.

4. **Excess Shipments.** The right is reserved to return excess shipments which are over and above the allowable limit of 10% at vendor's expense.

5. **Tools and Patterns.** All tools and patterns especially prepared or obtained to produce merchandise covered by this order, whether their cost is included in the unit cost or paid for separately, are the property of this company and are removable from your possession at our option.

6. **Prices.** If no price is shown on this order, it is understood and agreed that you will not charge, without our consent, a higher price for the goods called for by this order than was last quoted or charged to this office.

7. **Non-Performance.** The right is reserved to cancel this order or any portion of it, if delivery is not made when and as specified, time being of the essence of this order, and to charge seller for any loss entailed.

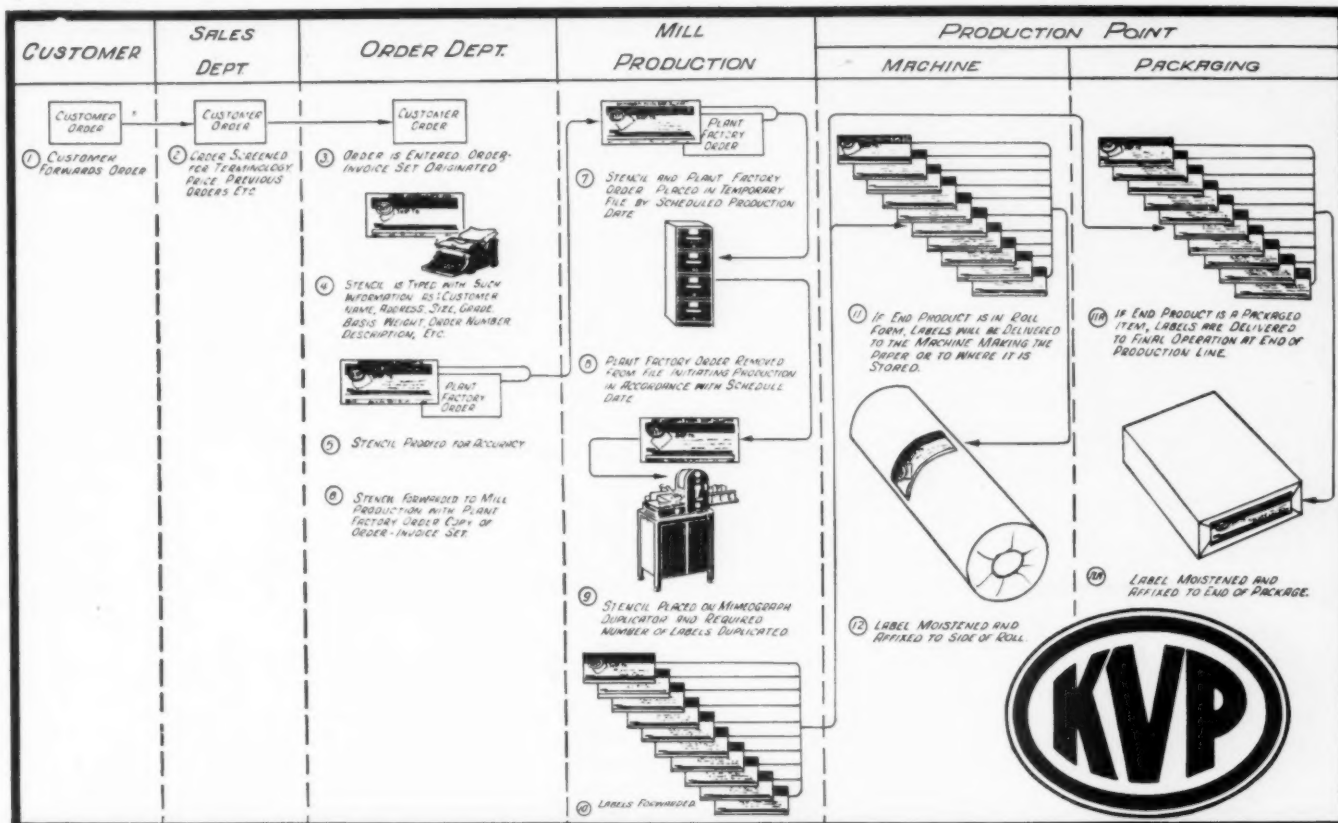
8. **Patents.** In consideration of the purchase of the above described articles, SELLER agrees to defend, protect and save harmless PUROLATOR PRODUCTS, INC., its successors, assigns, customers, and the users of its or their product against all suits, at-law or in equity, and from all damages, claims, demands and judgments for actual or alleged infringement of United States or foreign letters patents by reason of the sale or use of the articles hereby purchased.

9. **Acknowledgment.** Receipt and acceptance of this order must be acknowledged promptly, giving date of shipment.

(Please turn to page 274)

PART NO.	39999	DESCRIPTION	Elbow (br)	GP35-2500-3-45
VENDOR	X Corp.			PPInc
ORDER	DATE	AMOUNT	SCH.	PROMISE
22222	2/25	10 M	5 M 3/1	Let As. 2/29
			5 M 4/1	Sch 3/5
				3/10
				3/12
				Ship today PP Spl
				Exact size 4" x 6" card

Expediter Follow-Up Card. Properly maintained it enables the expediter to give instant information as to delivery on material covered.



Label Problems Solved!

Flow chart shows how Mimeograph brand duplicator and supplies helped solve complex labeling problems for leading paper manufacturer

How do you want your paper?

Parchment . . . waxed . . . bond . . . high-grade special wrappings . . . grease-proof and household specialty papers—Kalamazoo Vegetable Parchment Company, Kalamazoo, Michigan, makes them all.

And, naturally, with this variety of production—and a variety of packages, by rolls or by customer-specified cut sizes and quantities—KVP had a complex labeling problem.

They turned to the Mimeograph brand

duplicator and form-topped Mimeograph brand stencils for help.

And they got help—plus important savings in paper-work preparation, time and labor running to thousands of dollars annually.

The flow chart above shows the recommendations of our duplicating experts and the solutions to KVP problems. And here's why the solutions were successful:

1. Clear, easy-reading, black-and-white label copy with permanent, rub-proof Mimeograph brand ink to resist adverse handling, shipping, and storage conditions.

2. Centralized preparation of labels from master stencil. Gummed label stock is automatically fed by

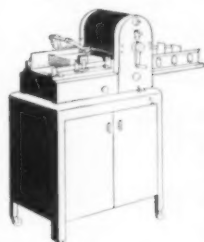
the Mimeograph brand duplicator.

3. Form-topped Mimeograph brand stencil sheets for accurate positioning of customer's order data right on the finished label. Stencil can be filed and used again.

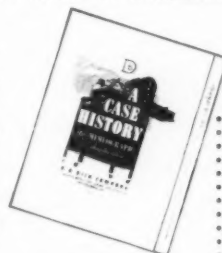
4. Plenty of copies of each label whether customer's order calls for tens or hundreds of packages. (KVP label requirement averages 50 copies, sometimes goes as high as 4,000 copies.)

This paper-work problem and its solution are typical of the results Mimeograph duplication and the work of our duplicating experts are securing for leading companies everywhere. Call the distributor nearest you, or write us for full information on how we can work with you.

COPYRIGHT 1947, A. B. DICK COMPANY



FREE! Complete case study of the KVP tag and label problem—including the flow chart reproduced above—plus samples of the finished labels and the form-topped Mimeograph brand stencil sheet that did the work. It's free! Clip and mail the coupon today!



A. B. DICK COMPANY, Dept. P-647
720 West Jackson Boulevard
Chicago 6, Illinois

Send me a copy of your case study of the KVP tag and label problem.

NAME

COMPANY

ADDRESS

CITY STATE

The Mimeograph brand duplicator

is made by

A. B. Dick Company, Chicago

MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U. S. Patent Office.

THIS COPY TO BE SENT PROMPTLY TO PURCHASING DEPT.

MAIN PLANT RECEIVING RECORD M 35996

PUROLATOR PRODUCTS, INC.

Exact size 8 $\frac{1}{2}$ " wide x 6 $\frac{1}{2}$ "

Received From _____ Date ____/____/194__

Shipped From _____

Truck	Freight	Messenger	Parcel Post	Our Truck	Express
Gross Weight	Net Weight	Packing Slip No.	COLLECT <input type="checkbox"/>	PREPAID <input type="checkbox"/>	C. O. D. <input type="checkbox"/>
Condition of Container	Drums	Casks	Boxes-Cases	Kegs	Cans
				Bags	Crates
Their Count	Our Count	Part Or M. No.	DESCRIPTION		Purchase Order No.

Sent To _____ Dep't _____ Rec'd By _____

PRINTED BY THE STANDARD BUSINESS CO., BOSTON, U. S. A.

The Receiving Record form is self-explanatory. It gives a complete story of the How, What, and When history.

(Continued from page 212)

10. Waiver of Conditions. It is agreed that waiver or acceptance by us of any breach on your part of any of the terms of this order shall not operate to relieve you of responsibility hereunder for any prior or subsequent breach.

11. Cancellation. PurOlator Products, Inc., reserves the right to terminate this order in the event of any termination or cancellation by the Government of the prime contract on which this order is based. Payment for work in process or undelivered articles ordered from the Seller shall be adjusted upon the same basis as that used by the Government in adjusting the claims of the prime contractor.

12. Acceptance. By your acceptance of this order you agree that all goods covered by this order shall comply with all Federal, State and other laws governing same. Also the seller agrees that the price or prices quoted herein are not in excess of the maximum price or prices as established by price schedules, orders, regulations or agreements fixed by the Office of Price Administration pursuant to the Emergency Price Control Act of 1942.

Purchase Record Form

Of especial interest is the Purchase Record form shown on Page 272. All purchase orders are posted on these sheets which constitute a quick, accurate source of information. These records also provide a permanent and readily available check on changes in prices.

This record also shows whether vendor has made over-runs—the limit is 10%. Excess over-run is shipped back to the vendor. Invoices are also re-checked against the prices recorded on this form.

Of interest also is the expeditor's follow-up card, which records Part No.,

and description; vendor, purchase order number, amount and scheduled delivery, promises, and the form of the follow-up action, such as whether by letter, telegraph or telephone. It is expected that expeditors have their records in such shape that when any one calls on the 'phone for information, they should be able to give immediate information on delivery of materials on order. Under present abnormal conditions, it is not always possible to pass on definite information that may be wanted.

On the 15th of each month, the cards are "flagged" to indicate material that is due the following month, based on information received from vendors. A green flag to the left of the form indicates that a definite promise has been received. For ordinary rush-orders a red flag is used, and in the event of an urgent requirement two red flags are used, these being placed in the middle of the card for immediate attention from

day to day until the material is received.

A green flag on the right corner of a card indicates that follow-up action is in order, and when the green flag is placed in the center of the card it indicates that action has been completed and only requires consistent check to see that the vendor is living up to his promises.

The Receiving Record is self explanatory, though it will be noted that the form is quite complete as to method of transport, weights, charges, and condition and type of container. Eight copies of the receiving record are prepared, the original being sent to the purchasing department, and copies being made for the records department, inspection department, planning department, and others concerned.

The Packing Slip, Debit Memorandum form, is used for rejected materials re-shipped to the vendor. Copies are sent to the respective departments concerned.

PUROLATOR PRODUCTS, INC.

DEBIT MEMORANDUM

PACKING SLIP C N^o 5222

Ship to: Exact size 7-5/4" wide x 5"

Send Invoice and B/L to: _____

WHEN INQUIRING REFER TO:

D. M. Date _____ No. _____

Ship Via _____

Transportation Charges _____

Refer to _____

Date Shipped _____

QUANTITY	PART NO.	DESCRIPTION	PRICE	AMOUNT

Form GP-2 15M sets 5-41 Y

The Packing Slip Debit Memorandum is issued to cover rejected materials re-shipped to vendor.



ALL PULLING TOGETHER

Still faced with the greatest demand ever, International's far-reaching organization is putting forth every cooperative effort to supply today's needs in paper and paperboard.

Industry-wide efforts have, in fact, sent production soaring to new, all-time highs, although shortages pose problems everywhere. To keep pace with the record-breaking consumption—and to provide users with top-

quality products—are the continuing objectives of International's woodsmen, millmen, salesmen, executives and distributors.





"OLD DUTCH" PRODUCTS for Every Duplicating, Carbon and Ribbon Need



WATERS & WATERS BRANCH

St. Louis, Mo.
San Francisco, Cal.

Burlington, N. J.
Los Angeles, Cal.

Set Up Standards Program for Office Equipment, Supplies and Procedures

American Standards Association Names Five Committees with
Technical subgroups

Representatives of 29 national trade associations, technical societies and government agencies meeting under the auspices of the American Standards Association, in New York, May 6, set up the first national voluntary standards program for office equipment, supplies and procedures.

The meeting, under the chairmanship of Robert E. Shull of the Socony Vacuum Oil Company, representing the sponsor of the project, the National Office Management Association, established five general committees with technical sub-groups. They will develop standards in the fields of office equipment, under the chairmanship of A. R. Hutchinson, Western Electric Company, representing the Telephone Group; forms, records and procedures, under the chairmanship of John F. Pierce, management consultant, representing the National Office Management Association; office papers, under the chairmanship of Robert Hano, Philip Hano Company, representing the Business Forms Institute; office supplies, under the chairmanship of R. A. Maish, vice president of Dennison Manufacturing Company, representing the National Stationers Association; and business machines, under the chairmanship of George Vanderbilt, Standard Oil Company, representing the National Office Management Association.

"The purpose of the program," Mr. Shull said, "is to develop standards for sizes, types and qualities mutually acceptable to the producer, the distributor and the consumer. We know that a start must be made somewhere in the complex field of office work, and we know that we have a continuing series of problems which will develop as office practices and machinery are improved."

Following a general morning session at the Waldorf-Astoria Hotel, attended by the representatives of all participating groups, the afternoon session consisted of five separate meetings of the designated subcommittees for organization purposes.

The initial projects chosen by the five subcommittees for immediate study out of the more than 25,000 items of office equipment and supplies considered available for standardization work include:

Erasers, chairman, Charles W. Lukens of Yeo and Lukens Company, representing the National Stationers Association.

Standard attachment of typewriters to desks, chairman, W. R. Leahy, Victor Adding Machine Company, representing the Office Equipment Manufacturers Institute.

Nomenclature, classification and definitions of business machines, chairman, Eric G. Stewart, U. S. Bureau of the Budget.

Scope and nomenclature pertaining to forms, records and procedures, chairman, Harold A. Finley, Metropolitan Life Insurance Company, representing the

Life Office Management Association.

Classification of papers used in the office, chairman, B. B. Klopfer, Standard Register Company, representing the National Office Management Association.

Office equipment (furniture) appointed two sub-groups. One on wooden desks and tables, chairman, W. E. Tarr of the Studebaker Corporation, representing the American Management Association. The second sub-group will work on steel desks and is headed by Hugh L. Smith of the Yawman and Erbe Manufacturing Company, representing the Office Equipment Manufacturers Institute. These two groups look toward dimensional standardization.

A committee appointed to coordinate the work of all the subcommittees is:

A. J. Ball, General Fireproofing Company, representing the Office Equipment Manufacturers Association, on equipment, chairman.

Herman Knauss, Mutual Life Insurance Company of New York, representing Life Office Management Association, on business machines.

Howard W. Lewis, Atlantic Register Company, representing Business Forms Institute, on forms, records and procedure.

A. F. Free, Association of American Railroads, representing the Association of American Railroads, on papers.

James J. Murphy of the American Telephone and Telegraph Company, representing the Telephone Group was vice chairman of the sectional committee.

Charles E. Hilon, of the ASA staff, was appointed general secretary for the project.

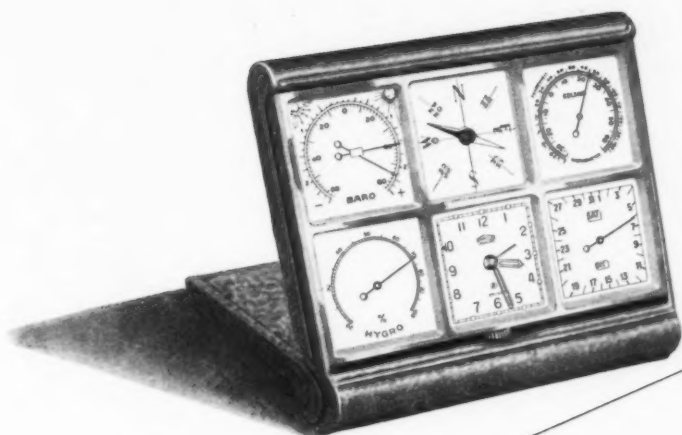
McBEE COMPANY ACQUIRES NEW JERSEY WAR PLANT

The McBee Company, Athens, Ohio, is the highest bidder with \$141,000 cash for the surplus industrial plant formerly occupied by the Quimby Pump Company at New Brunswick, N. J., the War Assets Administration has announced.

The plant consists of a plot of 1.7 acres and a one-story steel frame building 112 by 242 feet. According to D. R. Zenner, vice-president in charge of production, the New Brunswick plant will be used as a subsidiary to the main plant at Athens. McBee also operates plants in St. Louis and Los Angeles.

Remodeling and installation of new equipment will begin as soon as McBee acquires possession. It is estimated that operations in the new plant will start some time during the first half of 1948.

Company officials say that the expansion has been brought about by a desire to increase service to the growing eastern market. Nearness to raw materials used in McBee's products also influenced the selection of an eastern plant.



SIXSOME BY MARK CROSS




LETTERHEAD BY CORRECT BOND

Excellence imparts authority of its own. Wouldn't your
letterhead—your ambassador in print—appear to richly-deserved
advantage on this fine rag content, air-dried bond? Most particular printers,
familiar with CORRECT BOND for many years, will heartily agree.

Correct Bond

WHEREVER THE PRINTED WORD MUST TRULY REPRESENT YOU

HOWARD PAPER MILLS, Inc. • AETNA PAPER COMPANY DIVISION • DAYTON, OHIO



A PENNY'S WORTH OF PRINTED PAPER MAY COST YOU 50¢

When you buy printed paper forms for an office, the initial price is only a starter. And *nothing* grows in cost like a business form that isn't right—

You waste money when you *handle* it . . .

You waste more when you *write* it . . .

You even lose just *looking* at it!

Since you can't *eliminate* these activities, you're wise to reduce the time they take. Uarco Business forms assure:

Minimum *handling*... forms are combined so that one form serves many departments . . . pre-assembling saves time and bother.

Minimum *writing*... all necessary copies, 20 or more, come from a single writing.

Minimum *looking*... facts are always easy to reach, easy to read.

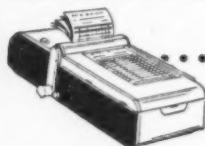
Begin these savings now by calling your Uarco Representative. It's better to take advantage of his survey than to ask a busy executive to do it. No obligation. UARCO INCORPORATED, Chicago, Ill.; Cleveland, Ohio; Oakland, Cal.; Deep River, Conn. *Offices in All Principal Cities.*



For Instance . . . Uarco Multi-Fold Continuous Forms cut writing and handling time by feeding the typewriter while the girl types. Equally effective on billing, bookkeeping, or any business writing machines, Multi-Folds put an end to carbon shuffling.

UARCO
INCORPORATED

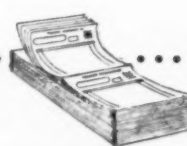
BUSINESS FORMS



AUTOGRAPHIC REGISTERS
AND REGISTER FORMS



SINGLE SET
FORMS



CONTINUOUS-STRIP FORMS
FOR TYPEWRITTEN AND BUSINESS MACHINE RECORDS



NAMED PRESIDENT OF RISING PAPER COMPANY

Fred E. May was elected president and general manager of the Rising Paper Company, Housatonic, Mass., to succeed the late R. H. Dempsey. Mr. May, who started in the paper industry with the Strathmore Paper Company in 1907, joined the Rising Paper Company as a salesman and later was promoted to sales manager and first vice president. He states that no changes are anticipated in the policies of the Rising Paper Company.

1 1 1

PARKER PEN ACQUIRES PLANT AT MENOMONEE, WIS.

Illustrated is the Parker Pen Company's new plant in Menomonee, Wis. Containing 51,000 square feet of manufacturing space in its three floors, the plant was purchased recently by Parker to house all of its facilities for the pro-



Parker Pen's New Plant at Menomonee

duction of ink in the United States. With operations already underway at a production rate of more than 50,000 bottles daily, all Parker inks, including the new quick-drying Superchrome, are now manufactured under one roof. Space formerly used in the Janesville, Wis. plant for ink production has been devoted to other manufacture.

1 1 1

WAA EXPORT SALES INCREASE

Sales of government surplus for export—particularly machine tools and long supply items—in the New York area are increasing rapidly under the recently liberalized War Assets Administration export program, showing a ten-fold increase over a year ago, according to the WAA.

The new WAA program places export buyers of machine tools on an equal footing with domestic dealers through the 12½ percent discount now allowed to exporters on fixed price machine tools. Export buyers also receive a special 30-day export offering of long-supply items unsold at fixed prices, and obtain, under adequate safeguards, interim letters of credit.

While machine tools have figured most largely in export sales of surplus to date, and will continue to constitute the most important single group of items sold abroad, the WAA is now giving attention to the export sale possibilities of other categories of long supply surplus property.

(Please turn to page 280)



Gardenias for the Girls

It's just like giving the office girls gardenias when you save them the extra effort of addressing both letters and envelopes. Get them the famous Shepcos window envelope with the Flavor-Seal flap. The elimination of addressing envelopes saves time for the office girls and money for you. Then too, there's no possibility of inserting letters in the wrong envelopes, since all are the same. Write today for samples of the famous Shepcos wrinkle-proof, semi-acetate window envelopes.



You can TASTE the difference!

ENVELOPE CO.

One Envelope Terrace • 'Phone 2-4674

WORCESTER • MASSACHUSETTS

Copyright by the Sheppard Envelope Co.

Our Watermark is your Quality Guarantee



- 1 COTTON FIBRE
- 2 25 - 50 - 75 or 100% Cotton Fibre Content
- 3 MADE "by FOX RIVER"

Businessmen are becoming paper-minded. Yes, indeed... they're realizing that the makeup of a good letter, be it a sales message or a friendly note, requires not only one's thoughts well stated, but fine paper upon which these thoughts are conveyed. For a fine letterhead is equally as important as the personal appearance of your salesman. Each represents you and your firm — making a good or a bad impression. Next time you sign a letter, hold the paper to the light. When you see "all three", as appears above, you know you're signing your name on the finest paper. Ask your printer about Fox River. He'll gladly recommend the correct percentage of cotton fibre for every business need. Fox River Paper Corporation, 403-F S. Appleton Street, Appleton, Wisconsin.

Bond, Ledger and Onion Skin Papers



Prospects for Burlap Supply

Analysis by F. H. Rhoden, Manager of Burlap Purchases, Chase Bag Company, who made two trips to Calcutta in the past year to get first-hand information on supply and price trends

What are the prospects for an increased supply of burlap this year? This is a moot question which is of vital importance, not only to industries using containers but also a variable that concerns a good many other industries using burlap in one form or another.

Shipments last year to North America, although close to a new record, were insufficient to satisfy the demand. Included in the shipments to the U.S.A. were about 100,000,000 yards, or approximately 10% of the total, which yardage by special arrangement was advanced during November/December 1946 against the January/June 1947 quota. In addition, the supply was augmented by about 300,000,000 yards—the final allocations from our Government's stockpile.

With the Government stockpile liquidated, our only source of supply now is India. During the first half of this year, shipments are expected to be limited to about 350,000,000 yards, compared with 475,000,000 yards shipped during the same period last year. Of this latter figure, about 90,000,000 yards were shipped during January/February and are part of the 300,000,000 yards which industry received from the stockpile. To recapitulate, allocations and shipments during January/June 1946 totaled 685,000,000 yards, whereas during the first half of this year shipments are not expected to exceed 350,000,000 yards. With no relief from the quota restrictions in sight and evidently only a remote possibility during the third quarter, it certainly looks as though there will be no improvement in supplies before the fourth quarter, if then.

Prospects poor

Unless the Government of India should decide during the next few months to terminate the export quotas or unless the rate of production of the Calcutta mills is stepped up sufficiently to permit the Government to raise the U.S.A. quota, receipts this year will fall short of last year's figure. The prospects at the moment are certainly not conducive to optimism and unless shipments from Calcutta during the second half of this year greatly exceed the original quota for the same period last year, the position is likely to become very difficult.

Fortunately, it now looks as though the supply of raw jute will improve during the latter part of this year. The crop is now being sewn and it is generally expected that the outturn may reach 10,000,000 bales, or the biggest crop since the 1940/1941 season. The final forecast of the Government of Bengal estimates the outturn of the 1946/1947 crop at 5,550,000 bales.

As a result of short jute crops in recent years, when the emphasis was placed on raising food grains, the stocks of the jute mills have been dwindling and are

expected to be so dangerously low before the new crop commences to arrive in August that the Indian Jute Mills' Association is reported to have requested the Government of Bengal to ask the Government of India to place an embargo on the exportation of raw jute.

A crop of 10,000,000 bales is urgently needed and should find ready buyers, particularly the Calcutta mills who obviously would like to replenish their depleted stocks. The jute mills on the European Continent who are anxious to build up their production are also fairly large potential buyers of jute. Never before has there been so much impor-

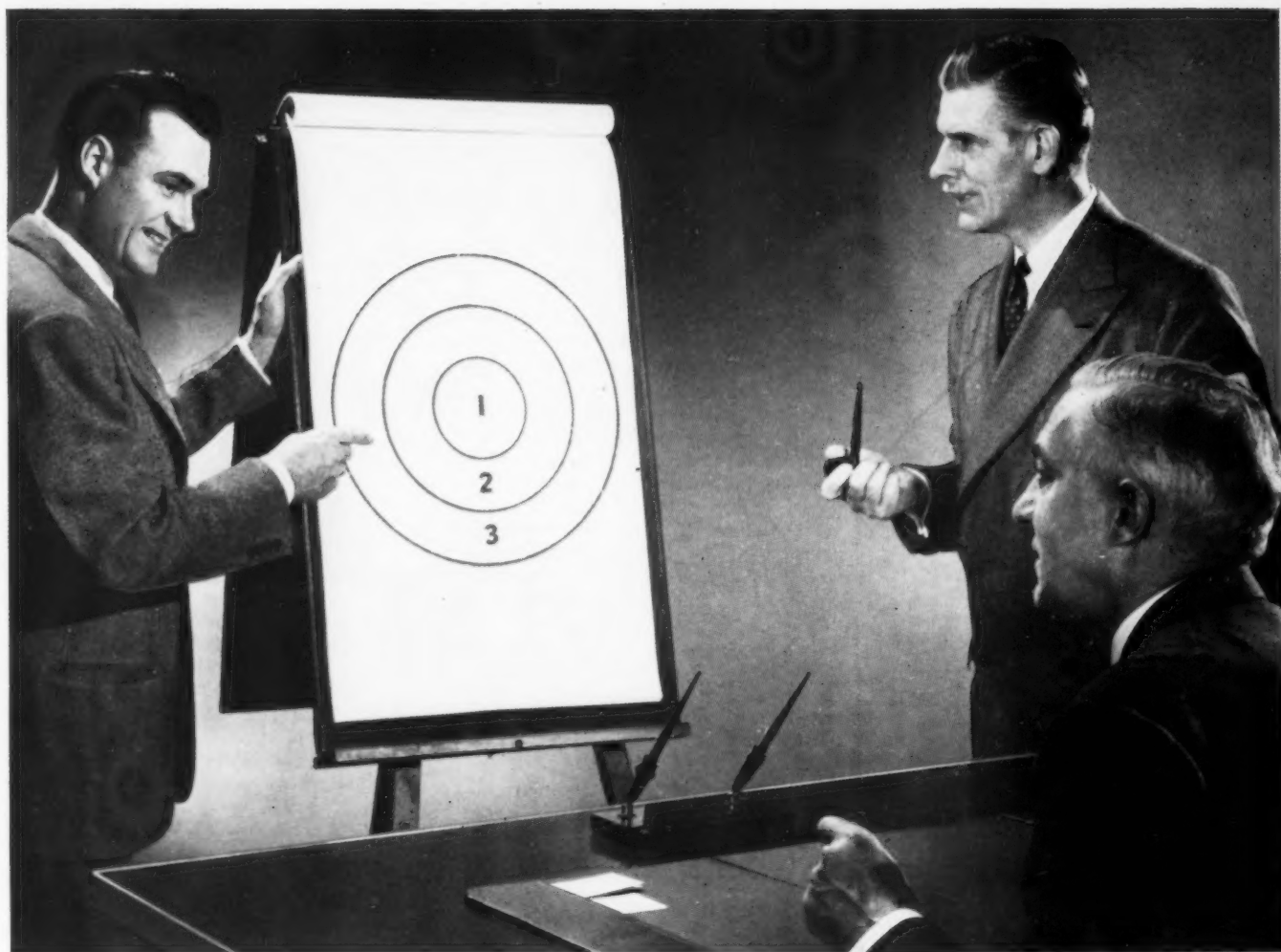


F. H. Rhoden

tance attached to the size of a jute crop as is now being focused on the 1947/1948 crop. More than any other factor the size of this crop will determine the course of burlap prices which have nearly doubled for nearby delivery since the price controls were removed last October.

Scanning the horizon for events that might correct the present upward trend of prices, there appears, in addition to the prospects of a large jute crop, a possibility that the Calcutta mills will be allowed upon making application to increase their working hours from 48 to 54 hours per week. 54 hours per week was the rate of operation up until August 1, 1946, when the mills complying with an amendment to the Factories' Act reduced their working time to 48 hours per week. There are reports from India that because of the shortage of cotton piece goods the cotton mills, who are also now running 48 hours, may be allowed to work 54 hours per week. It is assumed that the same privilege would be granted to the jute mills provided of course that a supply of jute is assured and sufficient coal can be delivered to the mills.

The Indian Jute Mills' Association recognizes that the current price level is dangerously high and is eager to restore its house to order. Lower prices and expanding markets are its motto. A concerted effort to satisfy the world's needs of jute goods at reasonable prices will be made by the mills just as soon as conditions permit.



**"Before we decide about forms," said the P. A.,
"let's look at our objectives..."**

"WITH these 3 circles, I can show you what we are really shooting for in this business today. We're interested in cost reductions and competitive advantage—right? Well, look."

Management's eyes followed the P. A.'s finger to the smallest circle.

- ① "This area represents the cost of the printed forms, themselves. Even if we cut corners on quality, we obviously can't save much here.

"But look at the *second* circle. It represents the cost of *writing, handling, and using* forms. And that cost is roughly 10 to 50 times the cost of the paper and printing.

"That's why the big savings begin with better form *performance*. The kind we can get by buying continuous forms especially designed and made to exact specifications."

- ③ The P. A.'s finger moved to the third and largest circle. "Here's what we buy and write forms for—to get things done right, promptly, econom-

ically. In this area of total operational costs, savings made through better systems of control can be almost incalculable."

* * *

Broad thinking. Management-sized thinking. The kind that so frequently results, as it did in this case, in making use of Standard Register's analytical paperwork simplification studies and Standard's Kant-Slip Continuous Forms.



FREE: VALUABLE NEW BOOKLET

"Q's and A's" tells how to buy continuous, marginally-punched forms by exact specifications that insure better, more economical form performance. Write for your copy, today. And let your Standard representative show you how Standard Register's analytical procedures can multiply these important savings into even larger figures through better control.

THE STANDARD REGISTER COMPANY

Manufacturer of Continuous Marginally Punched Business Forms and Feeding Devices
406 CAMPBELL ST., DAYTON 1, OHIO

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland 6, Calif.; Canada: R. L. Crain Ltd., Ottawa; London: W. H. Smith & Son, Ltd.



Why get high-blood pressure over slow deliveries when a letter or wire to Cesco will fill those urgent needs almost over night?

We're back in our old time stride with few, if any, production lags. Our plant is functioning with well-gear'd efficiency and our stock warehouses are again comfortably filled with the products that you need. Among the items in good supply and ready for immediate shipment are:

Post Binders Ring Binders
Visible Record Equipment
Prong Binders Ledger Covers
Corporation and
Lodge Minute Books
Memo Books
Catalog and Advertising
Covers

We can also give you immediate shipments of ledger leaves and columnar forms in practically all standard rulings and sizes. These are available in high grade ledger and bond stocks.

Do you have the latest Cesco Catalogs and Bulletins? If not it will be a pleasure to send them to you.

The C. E. SHEPPARD CO.

4405 Twenty First St.
 Long Island City, N. Y.

GLYCERINE MAKES FLEXIBLE BOOKBINDING GLUES

In a talk before the Bookbinders Association, A. Meyer of the Federal Adhesives Company in New York asserted that, despite the introduction of substitutes, glycerine remains the best plasticizer for bookbinding glues. Samples of flexible glues made with glycerine and with glycerine substitutes were prepared and examined. Although similar in appearance, it was explained that books made with glycerine-plasticized glues would remain permanently flexible, while others would crack and result in loose signatures.

In addition, Meyer explained, the inferior glue would eventually become very hard and most difficult to melt, while the glycerine-plasticized glue would remain flexible. This point was graphically illustrated by two books, one made with animal glue and glycerine and the other with animal glue and a glycerine substitute. The binding remained flexible in the first book, but the second showed pronounced cracking, especially when subjected to a dry atmosphere at low temperatures. The superior moisture-retaining property of glycerine was stressed as an important factor in its superiority.

1 1 1

JOHNSON REELECTED PRESIDENT OF FRIDEN COMPANY

Walter S. Johnson, president of the Friden Calculating Machine Co., Inc., San Leandro, Calif., since the death of Carl M. Friden in 1945, was reelected to that post at annual meeting of stockholders. Reelected to executive positions with him were John M. Lund, vice president and general manager; Charles T. Gruenhagen, secretary, and Wesley Plunket, treasurer.

1 1 1

READING GLASS 12 INCHES WIDE

Illustration shows the Magni-Line reading glass with special lens 13 1/4" high by 12" wide, marketed by the Copy-Right Mfg. Corp., 53 Park Place, New York, N. Y. The lens stands on its own sup-



Excellent for enlarging print of books, binders and other business sheets

porting feature which has a line-indicator to point out the exact reading line. Lens can be adjusted to any desired angle for comfortable reading and degree of magnification. The glass can be used on books, binders, sheets and other papers to enlarge fine print, tiny figures, tabulations, etc., making them easy to see and easy to read.

ROYAL HONORS VICE-PRESIDENT COOK ON 40TH ANNIVERSARY

Charles B. Cook, vice president and factory manager of the Royal Typewriter Company, recently was tendered a dinner in honor of his 40th anniversary with Royal.

On the occasion Mr. Cook was presented with an inscribed humidor by members of the Board of Directors and with a chaise lounge and side table by members of the Royal Foremen's Club.



Pictured in the foreground, Mr. Cook (left) being congratulated by Earle W. Goslee (right), president of the Royal Foremen's Club. In the rear, Allan A. Ryan, Chairman of the Board of Directors; A. E. Davis, vice-president and treasurer; and Maxwell V. Miller, president, Royal Typewriter Company.

1 1 1

"DON'TS" FOR THE USER OF TYPEWRITER RIBBONS

DON'T use ribbon continually in one track; for longer wear, use first one track, then the other.

DON'T keep using ribbon if type strikes too near the edge, making edging material ravel. Readjust ribbon mechanism.

DON'T keep using ribbon that sticks or jumps for the type will cut holes in the fabric. Adjust machine so that ribbon moves each time the type strikes.

DON'T keep using a ribbon that shows part of two colors. Adjust ribbon guide so type will not strike near the center.

DON'T drop liquid type cleaner on ribbon; it causes uneven work. Dry type thoroughly after cleaning.

DON'T use heavily inked ribbons with elite type. Ribbons are specially inked for small type use.

DON'T expect long wear from a ribbon very lightly inked.

DON'T expect a ribbon to give the same wear on manifolded as if used for one or two copies.

DON'T condemn any ribbon before finding out for sure whether the ribbon or some other factor is causing unsatisfactory work.—*M. & V. Analyst.*

1 1 1

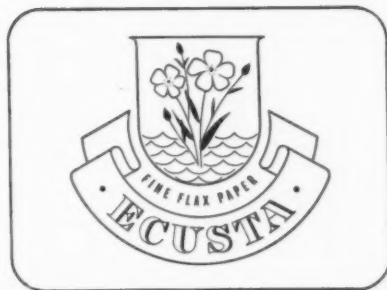
WAA QUARTERLY REPORT FORESEES INCREASING DISPOSAL PROBLEM

Although present disposals of surplus war property are at record high levels, changing market conditions point to an increasingly difficult liquidation problem,

(Please turn to page 284)

Make Your Messages

IMPORTANT
LOOKING



FINE FLAX WRITING

LINEN FLAX WRITING

FINE FLAX AIR MAIL

FLAX-OPAQUE BIBLE AND PRINTING PAPERS

BOXED TYPEWRITER PAPERS

Ecusta Paper Corporation

PISGAH FOREST, NORTH CAROLINA

TOO GOOD for your records and correspondence? *Not at all!*



WESTON PAPERS

Cost No More

Just because they are recognized as the *finest made* for business records and correspondence doesn't at all mean that Weston Papers will cost you more. Fact is, Weston Papers cost no more than other papers of the *same cotton fibre content grade*. So why not enjoy the extra efficiency, security and satisfaction that goes with keeping all records worth keeping on Weston Papers? Your supplier prefers Weston quality, too. He'll gladly run the next batch of letterheads, records or forms on a Weston Paper.

BYRON WESTON COMPANY
DALTON, MASSACHUSETTS

WESTON MAKES IT

BONDS
WESTON'S BOND
Extra No. 1, 100% Cotton Fibre
WESTON'S DEFANCE BOND
100% Cotton Fibre
WESTON'S HOLMESDALE BOND
75% Cotton Fibre
WESTON'S WINCHESTER BOND
50% Cotton Fibre
WESTON'S BLACKSTONE BOND
25% Cotton Fibre

LEDGERS
BYRON WESTON CO.
LINEN RECORD
Extra No. 1, 100% New White
Cotton and Linen Fibre
WESTON'S DEFANCE LEDGER
100% Cotton Fibre
WESTON'S WAVERLY LEDGER
75% Cotton Fibre
WESTON'S CENTENNIAL LEDGER
75% Cotton Fibre
WESTON'S WINCHESTER LEDGER
50% Cotton Fibre
WESTON'S BLACKSTONE LEDGER
25% Cotton Fibre

INDEXES
WESTON'S DEFANCE INDEX
100% Cotton Fibre
WESTON'S WINCHESTER INDEX
50% Cotton Fibre
WESTON'S MACHINE
POSTING INDEX
50% Cotton Fibre

MACHINE ACCOUNTING
WESTON'S TYPECOUNT LEDGER
75% Cotton Fibre
WESTON'S MACHINE
POSTING LEDGER
50% Cotton Fibre

Weston *Makers of Papers
for Business Records*



(Continued from page 282)

the War Assets Administration told Congress recently.

Reviewing the first quarter of 1947 in a progress report, WAA pointed out that disposals by all domestic agencies were at the rate of a billion dollars a month in reported cost and totaled \$3,500,000,000 for the quarter, 75 percent above the previous quarter, and indicated that the total disposal job was more than half done.

In a letter accompanying the report, Administrator Robert M. Littlejohn commented: "The balance of the job is more formidable. One third of the inventory consists of industrial plants and production equipment. The remainder is chiefly items that are in 'long supply' or 'left over' from previous sales. As was foreseen, the markets for surplus have now shrunk. Several months ago we enjoyed a seller's market. Now we have to cope with a buyer's market."

1 1 1

NEW POSTURE CHAIR

"The Sophisticate" is the name of new model posture chair made by The Sturgis Posture Chair Co., Sturgis, Mich. Advanced features include full cushion seat of "Nukraft," backrest that fits the natural curve of the back, and simple posi-



Sturgis Company's "Sophisticate"

tive adjustments. "Nukraft" is sterilized curled hair bonded in latex rubber, and the cushion seat is 2 1/2" thick. Backrest support is available which is designed to provide firm support while permitting free movement of the body. The frame is of welded steel construction, finished with baked enamel, and available in colors to match standard colors of metal desks. Upholstery is available in variety of colors in "Versilan" fabrics and leather as obtainable.

1 1 1

BUSINESS ACTIVITY IN THE CRITICAL YEARS 1939-1946

"Business Activity in the Critical Years 1939-1946" is the subject of business chart recently issued by Dun & Bradstreet, Inc., 290 Broadway, New York. The chart uses six indices as the measure of current business activity; namely, Industrial Production, Income Payments, Retail Sales, Wholesale Prices,

(Please turn to page 286)

There is an Underwood Sundstrand Adding-Figuring Machine for every type of business

IF YOU WANT FACTS *FAST*...

Figure It This Way!

Look at the Sundstrand keyboard. There are only 10 figuring keys, arranged in natural sequence under the finger tips of one hand. That's the world's fastest keyboard!

It's also the easiest to learn. Even untrained personnel can operate by the "touch" method after a few minutes' practice . . . pick up speed in a few hours. This means you get your figure facts *FAST*.

And, with speed comes accuracy. The operator's eyes are always on her work. Her left hand is free to follow data or turn pages. Hence, there is no tiring headswing.

Operators work smoothly . . . relaxed. Their fingers ripple lightly over the keys setting up numerals . . . adding, subtracting or multiplying . . . producing totals, sub-totals and credit balances. Whatever your adding-figuring jobs may be . . . however large or complex . . . there is an Underwood Sundstrand machine to serve you.

Preferred today by every type of industry . . . from railroads to retail stores . . . from banks to big utilities. If you want to improve the efficiency of your figure workers, call your nearest Underwood representative and

ask for a demonstration of an Underwood Sundstrand Adding-Figuring Machine . . . TODAY.

Underwood Corporation

Adding Machines . . . Accounting Machines
 . . . Typewriters . . . Carbon Paper . . .
 Ribbons and other Supplies

One Park Avenue New York 16, N. Y.

Underwood Limited, 135 Victoria St.,
 Toronto 1, Canada

Sales and Service Everywhere

Underwood . . .

Speeds the World's Business

Copyright 1947, Underwood Corporation

Levelcoat*

PRINTING PAPERS



Distributed by

ALABAMA	
Birmingham	Sloan Paper Company
ARIZONA	
Phoenix	Zellerbach Paper Company
ARKANSAS	
Little Rock	Arkansas Paper Company
CALIFORNIA	
Eureka	Zellerbach Paper Company
Fresno	Zellerbach Paper Company
Los Angeles	Zellerbach Paper Company
Oakland	Zellerbach Paper Company
Redding	Zellerbach Paper Company
Sacramento	Zellerbach Paper Company
San Diego	Zellerbach Paper Company
San Francisco	Zellerbach Paper Company
San Jose	Zellerbach Paper Company
Stockton	Zellerbach Paper Company
COLORADO	
Denver	Carpenter Paper Company
Pueblo	Carpenter Paper Company
CONNECTICUT	
Hartford	The Rourke-Endo Paper Co., Inc.
West Haven	Bulkley, Duntun & Co., Inc.
DISTRICT OF COLUMBIA	
Washington	The Barton, Duer & Koch Paper Co.
FLORIDA	
Jacksonville	Knight Brothers Paper Company
Miami	Knight Brothers Paper Company
Orlando	Knight Brothers Paper Company
Tallahassee	Knight Brothers Paper Company
Tampa	Knight Brothers Paper Company
GEORGIA	
Atlanta	Sloan Paper Company
IDAHO	
Boise	Zellerbach Paper Company
ILLINOIS	
Chicago	Berkshire Papers, Inc.
Chicago	Chicago Paper Company
Chicago	Midland Paper Company
Springfield	Capital City Paper Company
INDIANA	
Indianapolis	Crescent Paper Company
IOWA	
Des Moines	Carpenter Paper Company
Sioux City	Carpenter Paper Company
KANSAS	
Topeka	Carpenter Paper Company
Wichita	Western Newspaper Union
KENTUCKY	
Louisville	The Chatfield Paper Corp.
LOUISIANA	
Baton Rouge	Louisiana Paper Co., Ltd.
New Orleans	The D and W Paper Co.
Shreveport	Louisiana Paper Co., Ltd.
MARYLAND	
Baltimore	Baltimore Paper Company, Inc.
MASSACHUSETTS	
Boston	Carter, Rice & Company Corp.
Worcester	Charles A. Esty Paper Company
MICHIGAN	
Detroit	Seaman-Patrick Paper Co.
Grand Rapids	Carpenter Paper Company
MINNESOTA	
Duluth	John Boshart Paper Company
Minneapolis	Carpenter Paper Company
St. Paul	Carpenter Paper Company
MISSOURI	
Kansas City	Carpenter Paper Company
St. Louis	Beacon Paper Company
St. Louis	Shaughnessy-Kniep-Hawe Paper Co.
St. Louis	Tabery Fine Papers, Inc.
MONTANA	
Billings	Carpenter Paper Company
Butte	Carpenter Paper Company
Great Falls	Carpenter Paper Company
Missoula	Carpenter Paper Company

NEBRASKA	
Lincoln	Carpenter Paper Company
Omaha	Carpenter Paper Company
NEVADA	
Reno	Zellerbach Paper Company
NEW JERSEY	
Newark	J. E. Linde Paper Company
NEW MEXICO	
Albuquerque	Carpenter Paper Company
NEW YORK	
Albany	Hudson Valley Paper Company
Brooklyn	A. Price & Son, Inc.
Buffalo	Paper Service, Inc.
Buffalo	Union Paper & Twine Co., Inc.
New York	Baldwin Paper Company, Inc.
New York	Bulkley, Duntun & Co., Inc.
New York	The Canfield Paper Co.
New York	Forest Paper Company, Inc.
New York	J. E. Linde Paper Company
New York	A. Price & Son, Inc.
New York	Royal Paper Corporation
Rochester	Paper Service, Inc.
Syracuse	Paper Service, Inc.
Troy	Troy Paper Corporation
NORTH CAROLINA	
Charlotte	Dillard Paper Company, Inc.
Greensboro	Dillard Paper Company, Inc.
NORTH DAKOTA	
Fargo	Western Newspaper Union
OHIO	
Cincinnati	The Chatfield Paper Corporation
Cleveland	The Petrequin Paper Company
Columbus	The Scioto Paper Company
Toledo	The Ohio & Michigan Paper Co.
OKLAHOMA	
Oklahoma City	Carpenter Paper Company
Tulsa	Taylor Paper Company of Oklahoma
OREGON	
Eugene	Zellerbach Paper Company
Portland	Zellerbach Paper Company
PENNSYLVANIA	
Philadelphia	Paper Merchants, Inc.
Philadelphia	D. L. Ward Company
Pittsburgh	The Chatfield & Woods Co. of Pa.
RHODE ISLAND	
Providence	Carter, Rice & Company Corp.
SOUTH CAROLINA	
Greenville	Dillard Paper Company, Inc.
TENNESSEE	
Chattanooga	Bond-Saunders Paper Co.
Knoxville	Southern Paper Company, Inc.
Memphis	Taylor Paper Company
Nashville	Bond-Saunders Paper Co.
TEXAS	
Austin	Carpenter Paper Company
Dallas	Carpenter Paper Company
Fort Worth	Carpenter Paper Company
Harlingen	Carpenter Paper Company
Houston	Carpenter Paper Company
Lubbock	Carpenter Paper Company
San Antonio	Carpenter Paper Company
UTAH	
Salt Lake City	Zellerbach Paper Company
VIRGINIA	
Richmond	Cuthorne Paper Company
WASHINGTON	
Seattle	Zellerbach Paper Company
Spokane	Zellerbach Paper Company
Walla Walla	Zellerbach Paper Company
Yakima	Zellerbach Paper Company
WISCONSIN	
Milwaukee	The Bauer Paper Company

EXPORT AGENTS

American Paper Exports, Inc., New York, U. S. A.
Cable Address: APEXINC—New York

If our distributors cannot supply your immediate needs, we solicit your patience. There will be ample Levelcoat Printing Papers for your requirements when our plans for increased production can be realized.

KIMBERLY-CLARK CORPORATION • NEENAH, WISCONSIN

122 East 42nd Street, NEW YORK 17
155 Sansome Street, SAN FRANCISCO 4

8 South Michigan Avenue, CHICAGO 3
22 Marietta Street, N. W., ATLANTA 3

*TRADEMARK

(Continued from page 284)

30 Industrial Stock Price Averages (Dow-Jones), and Current Liabilities of Commercial Failures (Dun & Bradstreet). The shifting of the indices in the reconversion period reflects the tug-of-war within the nation's economy, as business seeks to find its level after the shock of war.

1 1 1

MULTI-PURPOSE SOUND CONSOLE COMBINES PAGING AND WORK MUSIC

Especially designed to afford factories, plants and large offices with complete voice-paging facilities, as well as "music at work", new multi-purpose sound console, model P-20, combines in a single cabinet all the central control elements needed in a sound system requiring up to 50 watts. Power output can be substantially increased by the addition in remote



The new console combines voice-paging and work-music

departments of 50-watt district amplifiers.

Any number of microphones with their associated controls located in separated departments can be used with the console to comprise a completely automatic, thoroughly integrated sound system.

One-button control permits the user, who may be at any microphone location, to issue a voice message by pressing one button. All other control stations are automatically given notice by a busy signal lamp. Any music program in process is automatically cut off for the duration of the message. Thus calls can be made at any time without approaching the console which may be on a different floor or at some distant location.

This model has an intermix automatic record changer which handles recordings of either 10" or 12" size in any sequence and turns itself off after the last record has been played.

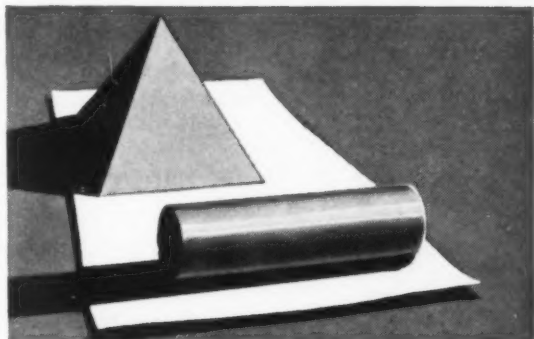
Complete details will be forwarded on request, by Executone, Inc., 415 Lexington Ave., New York 17, N. Y.

(Please turn to page 288)



This advertisement is one of a series appearing in four colors in *Fortune*, *Nation's Business*, *United States News*, *Newsweek* and *Business Week*.

Test your word knowledge of Paper and Printing



1. Compressibility

- ☐ Characteristic of condensed type
- ☐ Decrease in paper thickness under specified load
- ☐ Common fault in halftone mounting blocks



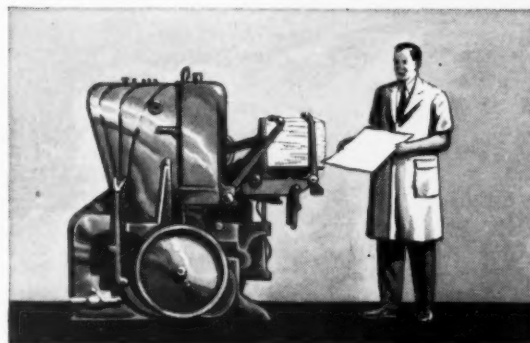
2. Ben Day Process

- ☐ Electroplating process
- ☐ Way of producing screen effect in line engraving
- ☐ Method for machine-coating paper



3. Luminance

- ☐ Surface brightness in paper
- ☐ Ornamentation of a type page
- ☐ Ability of paper to block light



4. Letterpress Printing

- ☐ Mimeographing of form letters
- ☐ Printing from rubber rolls
- ☐ Printing direct from raised surface plates

ANSWERS

1 Compressibility is the percentage decrease in paper thickness under a specified load — an important factor in printing. Due to the quantity and quality of fiber used, compressibility is a pronounced feature in Levelcoat* printing papers.

2 Ben Day Process is a way of producing a screen effect in a line engraving. For this simple graphic arts technique — as well as for the most complex — Levelcoat printing papers provide fine reproduction with unvarying fidelity.

3 Luminance is surface brightness in paper as measured under laboratory conditions. Laboratory tests of new 1947 Trufect* reveal a smoother, whiter surface. And there is unusual brightness in this top-grade Levelcoat printing paper.

4 Letterpress Printing is the method of printing direct from raised surface plates. For dependable printing in large quantity, specify new 1947 Kimfect* — a grade of Levelcoat which offers outstanding quality for volume printing.

Levelcoat* PRINTING PAPERS

Levelcoat* printing papers are made in the following grades: Trufect*, Kimfect*, Multifect* and Rotofect*.



KIMBERLY-CLARK CORPORATION

NEENAH, WISCONSIN

*TRADEMARK

1872 — SEVENTY-FIVE YEARS OF FINE PAPER MAKING — 1947

Remington Rand's revolutionary Plastic Plate

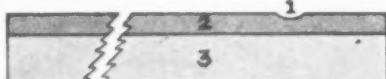
**for direct image
offset duplication!**

Cheaper than metal, more dependable than paper—better than both! Now you can obtain better direct image offset duplication at less cost by using the new Remington Rand plastic plate. Here are a few of the many advantages this patented plate gives you:

- 1 Consistently better corrections that hold up for the length of run.
- 2 A quality run under average conditions at least equal to that of aluminum plates.
- 3 No oxidation or "curl up"—you file these plates easily.
- 4 Top illustrating qualities:—the translucent plate surface resembles drawing paper, is ideal for either free hand or traced illustrating.
- 5 High tensile strength eliminates the "stretch problem", gives you "stay put" loops.

After exhaustive tests, laboratory technicians state: "Typed with a carbon paper ribbon, this plastic plate produces copies at least equal, and in many cases superior, to top-quality photographic offset work!"

Why Plastic Plates are Superior



- 1 Correction does not pierce plastic coating.
- 2 Grease- and water-receptive plastic coating.
- 3 Plastic-impregnated base stock impervious to water.

Plastic plates are superior to ordinary plates because of their patented construction. The plastic-impregnated base stock is impervious to water, so it develops no pronounced curl and does not stretch. The plastic coating lets you make easy corrections that consistently "hold up" and cannot be noticed.

To demonstrate this new plate's manifest superiority, we will send you without charge 3 direct image plates to use on your own duplicator

TOP-QUALITY PHOTOGRAPHIC OFFSET PLASTIC PLATES, TOO. Photographic offset plastic plates eliminate the regraining and other nuisances of metal plates. Cut your costs and forget humidity problems. Check the coupon for complete details. Get your free plates now. Just phone your nearest Remington Rand office or send us the coupon below.

**GET YOUR
FREE
SAMPLE PLATES**

Remington Rand

SEND COUPON TODAY

Send me without charge 3 direct image plastic plates. I use a _____ typewriter, and a ribbon of _____
☐ cloth fabric ☐ carbon paper
 My offset machine is a _____ Model No. _____
☐ Send information on photographic plates.

Duplicator Supplies Div., 2 Main St., Bridgeport 1, Conn.

Firm Name _____

Street _____

City _____ Zone _____ State _____

Signed by _____

6-G

(Continued from page 286)

COLOR TALKING PICTURE PRESENTS NEW ACCOUNTING METHOD

A radically new, yet basically simple system of accounts receivable control is dramatically and dynamically presented in the new twenty minute, full color, sound motion picture "Saving With SUIAP" released recently by the Systems Division of Remington Rand Inc. SUIAP denotes the Simplified Unit Invoice Accounting Plan that speeds and facilitates receivable procedures.

"Saving With SUIAP" traces the development of accounts receivable from the "spindle" credit system of an old fashioned country store through the stages of bound books and loose leaf ledgers to systems of machine posting and the new ledgerless accounts receivable plan. It shows how this work saving plan, through the elimination of all posting, provides remarkable speed and how positive control over credit and collection activities is established through the use of colored Graph-A-Matic signals.

The advantages of a unit operation, where one operator handles all credit, accounting and collection operations for a group of accounts, is portrayed in action and dialog. How records are provided with certified fire protection at the point-of-use and other unique features of the system are presented clearly and convincingly.

The experience of many prominent users of the SUIAP system is described to highlight the operation advantages of this system in practical day-to-day operation.

Prints of this film are now available in Remington Rand offices in all sections of the country - and showing to interested groups or to officials of individual companies will be arranged upon request by Systems Division representatives of any local Remington Rand office.

1 1 1

NEW INDUSTRIAL DRAWING SET

Industrial drawing set introduced by Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago, Ill., includes beam compass with 8-inch and 13-inch beams; a 6-inch giant bow compass; ruling pen with club style wood handle, and draftsman's refillable pencil that can be converted into a double point pencil. The beam compass features rapid, simple and positive adjustment of the needle and pencil blocks on the beam. The ruling pen has a calibrated adjusting collet that enables the user to regulate the opening of the nibs and at the same time record the desired setting for future use. The compass draws circles 1/16" to 8-inches in diameter, and lead of pencil part can easily be advanced by slightly turning the adjusting collar of the chuck. The pencil may be converted to a double point pencil with an extra chuck and mkatching tip. The set is assembled in a block-lined mahogany case.

(Please turn to page 290)

The Mark of the maker — your mark of assurance

When the violin makers of the 17th century were producing their masterpieces they marked them with a written, or printed, label, pasted inside the instrument. It was the mark of pride in their craftsmanship; the mark of authenticity—prized then, priceless now.

This marking of the product with the name of the maker is the heritage of many crafts and skills. It is one we cherish here at the Crane mills where we have been making paper from cotton and linen fibres solely for 146 years. The name of Crane—watermarked in every sheet—is the mark of continuity of purpose, of fidelity to standards of excellence. It is your mark as well in the purchase of Crane's Fine Papers; in your pleasure and satisfaction in their use in all your personal and business correspondence and social needs. This mark reveals itself when you hold the paper against the light. We suggest you look for the mark of Crane when next you buy paper.



CRANE'S
FINE PAPERS

MADE IN DALTON, MASSACHUSETTS
SINCE 1801





Old Town

**RIBBONS
CARBONS
Duplicating
Supplies**

*For those
who prefer the best*

BROOKLYN 17, N. Y.

Never before such
FAST, EASY
FILING
portable file with




The Oxford
"Pendaflexer"

This new post-war "Pendaflexer" brings you double filing convenience—a handsome, sturdy steel filing cabinet on wheels, plus hanging Pendaflex* folders.

Roll the "Pendaflexer" anywhere you need it—that's convenience number one. Then file and find papers instantly in modern hanging Pendaflex* folders—that's convenience number two!

It's a combination that will break every filing and finding speed record wherever used. Get your "Pendaflexer" now—immediate delivery.

Reg. U.S. PAT. OFF

OXFORD FILING SUPPLY COMPANY, INC.
326 Morgan Avenue, Brooklyn 6, N. Y.
Send Coupon for Illustrated Price List

Name.....
Address.....

(Continued from page 288)

ALLEN OPENS NEW BRANCH IN GRAND RAPIDS

—With the opening of its new branch sales and service office in Grand Rapids, R. C. Allen Business Machines, Incorporated announces the appointment of Eugene F. Malloy as its newest Branch Manager.

Mr. Malloy, who has had more than 10 years of experience in the retail business machine field, comes to Grand Rapids from Houston, Texas. Graduating from the Chicago public school sys-



President R. C. Allen at his
desk in Grand Rapids

tem, he attended Notre Dame University, from which he received his Ph.B. in 1936.

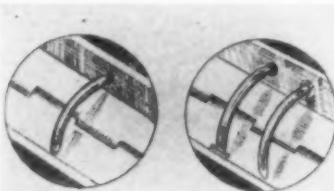
The new R. C. Allen branch office, located at 660 Front Avenue N. W. in Grand Rapids and adjacent to the company's main factory, will serve as retail headquarters for the company in western Michigan for the complete Allen line.

Recent appointment of Elmer Hyland as manager of its Chicago Branch is also announced by the company. Mr. Hyland has already taken up his new duties in the R. C. Allen Chicago office, located at 343 South Dearborn. He had previously been retail sales manager for the Miami branch of Burroughs Adding Machine Company.

1 1 1

NEW PRONG BINDERS

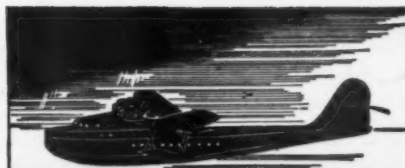
Two new prong-type binders, with radical operating advantages, have just been announced by the Systems Division of Remington Rand Inc., 315 Fourth Ave., New York, N. Y. These binders are adapted particularly for catalog and sales presentation use, as they provide the same flat reference convenience and ease of changing sheets, as a standard ring binder.



er. Yet, they hold considerably more pages than ring binders with the same capacity rating, and are more compact and of smaller over-all size. The new Remington Rand Prong Binder holds a full 2" of sheets, as compared to a maximum 1 2/3" in a 2" ring binder.

These new Prong Binders are available

(Please turn to page 292)



THIN PAPERS

Reduce

TYPING, MAILING
and FILING COSTS

Use

ESLEECK
THIN PAPERS

Fidelity Onion Skin
Clearcopy Onion Skin
Superior Manifold

Esleeck Manufacturing Co.
Turners Falls, Mass.

IF YOU ARE NOT NOW
RECEIVING A PERSONAL
COPY OF PURCHASING
EACH MONTH...

—drop a line to Reader Service
Department, Purchasing, 205 East
42nd St., New York 17, and we will
enter your subscription promptly—
price \$3 for one year. \$5 for two
years. You will then get your copy
of PURCHASING promptly and
will be able to clip the valuable
articles in it for your personal refer-
ence files.

...IT STAPLES!
FOR PERMANENT FASTENING

...IT PINS!
FOR TEMPORARY FASTENING

...IT TACKS!
ON BULLETIN BOARDS, SHELVES, ETC.

... and it loads quicker, works slicker ... because of its Open Channel!

Chromium body protects the channel against grit and dust to insure clog-free performance. Super-hardened steel, precision engineered to last a lifetime!

Load a Swingline stapler with 100% round wire Swingline staples, and you have the speediest, most efficient stapling

team for office, factory, school or home.

SWINGLINE STAPLES are 100% round wire, pre-tested to insure rapid-fire penetration and clog-free action in any standard stapler. Look for the red, white and blue box at your stationer's.



Swingline
STAPLES STAPLERS



SPEED PRODUCTS COMPANY, INC., LONG ISLAND CITY 1, N. Y.

What shape are your forms?

THE FIRST REQUISITE for business forms is the ability to remain clear and legible through years of continued use. Ask your printer how you can secure a paper that will stand up to these rigid requirements. As a man who knows all there is to know about paper ... we're sure he will steer you to



Rising Bond

Venvelopes in 6 sizes

✓25% rag
✓3 weights

✓white and 5 colors

✓excellent printing surface for engraving, lithography, gravure or letterpress

When you want to KNOW ... go to an expert!



Rising Papers

Ask your printer ... he KNOWS paper!

Rising Paper Company, Housatonic, Mass.



UTILIZED by the
BUSIEST
PURCHASING AGENTS

MacRae's
Blue Book

A DIRECTORY OF AMERICAN INDUSTRY ... FOR ADVERTISING AND BOOK
RATES, CALL YOUR AGENCY OR WRITE ... 26 E. HURON ST., CHICAGO 11, ILL.

(Continued from page 290)

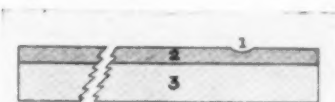
in two types — the Para-Prong, which uses three sets of split prongs spaced to accept conventional ring binder punching; and the Vari-Prong, which is equipped with four solid prongs spaced for standard Tengwall punching. A single thumb operated lever places the binder in half-open or reference position and further pressure spreads the prongs wide open for a quick change in contents.

1 1 1

NEW-TYPE PLASTIC OFFSET DUPLICATION PLATE

A new-type offset duplication plate, made of plastic, is announced by the Duplicator Supplies Division of Remington Rand, Bridgeport, Conn., after three years of research and experimentation. The new plate uses two patented plastics to overcome difficulties associated with paper and metallic plates.

The direct image plastic plate's advantage include:— corrections that cannot be noticed and that hold up for the length of run; top illustrating qualities—either tracing or freehand; prevention of



Remington Rand's non-detectable correction plastic offset duplication plate

any pronounced curl; a high tensile strength eliminating both stretching and ordinary "pull outs" of fastening loops; and a quality run under average conditions at least equal to that of aluminum direct image plates.

After exhaustive tests, laboratory technicians stated: — "When typed with a carbon paper ribbon, this direct image plastic plate produces copies at least equal, and in many cases superior, to top-quality photographic offset work."

"The photographic offset plastic plate produces superior copies at low cost, while dispensing with regaining and humidity nuisances."

1 1 1

PORTFOLIO COVERS STREAMLINING OF BUSINESS RECORDS

Time-reducing and cost-cutting methods of streamlining business records and procedures are suggested in the new sample portfolios made available by Uarco Incorporated, manufacturers of continuous business forms and systems, to purchasing agents.

The portfolio contains business forms of various types utilized by comparable firms and organizations that have achieved accurate and up-to-date systems consolidating and simplifying their recording operations.

Your portfolio may be obtained without obligation by addressing the Systems Department, Uarco Incorporated, 5000 South California Avenue, Chicago 32, Illinois.

METROPOLITAN NEW YORK PRINTING DIRECTORY

Yorke's Printing Buyer's Handbook, 296 pages, is designed to show buyers where to buy what they want or need. It contains general directories of Binders, Direct Mail Services & Mailers, Engravers, Mounters & Finishers, Paper Merchants, Photo-Engravers, Photo-Printers, Plate Makers, Printers and Typographers in New York City. It shows type of service available, and indicates plant equipment where that is a factor. Price \$15.00.

1 1 1

NEW CHROME, UPHOLSTERED BENCHETTE

Chrome plated benchette with upholstered seat and back, is being introduced by Maso Steel Products, 500-32 South Throop Street, Chicago 7, Illinois. The new benchette is built of heavy gauge one inch tubular steel, with welded frame



Maso's Benchette

construction for greater strength and longer life. It seats two people with comfort. The seat and backrest are heavily padded and covered with plastic-coated leatherette which is available in antique red, brown, blue, green or black. The leatherette is stain and fire resistant and the legs and steel supports have the triple process chrome finish. Overall dimensions are: width, 36 inches; depth, 20 inches; height, 32 inches.

1 1 1

ELECTRONIC TAPE RECORDER FOR CONFERENCES, INTERVIEWS

Verbal conversation (round table discussion, interviews, conferences, etc.) can now be picked up and recorded permanently on a safety tape 16 mm. size at a radius of up to 100 feet from the microphones, Miles Filmograph permanent tape recorders and miles-soundtrap.

One or more microphones may be used (can be hidden from view, if desired) and recording can be started and stopped by Remote Control.

Permanent and Continuous recordings can be had up to 11 hours and play-back which is instantaneous can be had through earphones, "soft" or large Loud Speakers.

Several models are available in film-graph some with very fast re-wind feature. (Please turn to page 295)



Personality-

ALWAYS A GREAT DRAWING CARD

Every company check you write can be a business-drawing card—provided it has *personality*.

Reynolds and Reynolds has designed check and voucher systems of all types, for some of the nation's largest check users. They are prestige-builders that reach thousands of business men daily.

We'll do the same for you—using our exclusive, protected Reynoco Safety paper—or a beautiful personalized panto-

graph. Either method results in checks that are eye-luring and extra safe!

For one-writing payroll systems, we offer smudge-resistant hot wax-base carbon strips. And our voucher systems with one-time carbon interleaved, cut down writing time and costs.

Give your secretary a memo now to write us for further information about *protected* personality-packed checks.

CHECKS WITH PERSONALITY BY

The
REYNOLDS
&
REYNOLDS

COMPANY • DAYTON 7, OHIO

Established 1866

SALES OFFICES IN MANY PRINCIPAL CITIES

The New **BOSTON** *Ranger*

the Pencil Sharpener for
Today's and Tomorrow's needs



The **RANGER**

A modern, double-bearing pencil sharpener—creating a totally new standard of sharpening service. Some of its outstanding features are: solid steel cutters with 15 cutting edges • point adjuster giving choice of points, semi-blunt, standard and fine • guide for sharpening pencils of various thicknesses • automatic stop, preventing waste • double-bearing operation for extra-long life • modern styling—the projections usually appearing in pencil sharpeners are eliminated.

The ranger combines rugged construction with beautiful appearance and modern design.



C. HOWARD HUNT PEN CO.

Camden, N. J.

SPEEDBALL PENS

HUNT PENS

Fine **Diamonds**



*Selections sent for inspection
without obligation.*

L. & C. MAYERS CO.

Diamond Merchants since 1912

545 FIFTH AVENUE, NEW YORK 17, N.Y.

Are you taking full advantage of
your rights as a reader of
PURCHASING?

For example, are you putting **PURCHASING** to work obtaining free charts, manuals, catalogs, booklets, and bulletins describing the latest equipment and materials that will improve your plant's operations and product?

For the best of the month's offerings, see page 14 of this issue. Check off what you want on the business reply card at the bottom of page 19, mail to us.

When we asked a cross section of **PURCHASING** readers to rate the articles and features of a typical issue in order of their importance, the Free Informative Literature Section proved to be well in the first division.

Your catalog file will always be up to date if you cultivate the excellent habit of looking over the free literature offerings each month, and letting **PURCHASING** obtain for you what you want.

(Continued from page 293)

tures (app 60 to 1 ratio) and costing only 5¢ per hour, others for continuous operation requiring no rewinding.

Filmgraph will also record two or multiple-way telephone conversations when used in conjunction with miles tele-mike, a midget unit which requires no physical contact to the telephone and measuring 1" x 1" x 1/4" thick.

While these units are especially designed for recording interviews, conferences, etc., for operation by remote control so that the person or persons being dictation etc., permanently and economic-talks, lectures, telephone conversations, recorded will not be conscious of the fact that a recording is being made, they will also record case histories, sales ally.

J. M. Kuchlik, Sc. D. is the inventor of the Filmgraph and the Miles Reproducer Co., Inc. of 812-814 Broadway, New York, N. Y. is the licensee and manufacturer.

1 1 1 SPEEDS VOLUME MAILING OF CATALOGS, BULLETINS, ETC.

Heart of all-purpose mailing system developed by the All Purpose Metal Equipment Co., 267 Mill St., Rochester, N. Y., for volume handling of letters, catalogs, bulletins, folders and other types of mailing pieces, is a "hook-on" tray with a flared edge at the back. These trays are hooked-on to what are termed



System for speeding up volume mailing operations.

whirling racks that are fitted to mail tables. When trays are filled they are removed from this rack and placed on dolly rack for rolling to the next mailing operation. The systems are engineered to meet mailing requirements.

1 1 1 WETTING AGENT FOR GUMMED ENVELOPES, LABELS

Wet-It is the name of wetting agent announced by The Lorain Co., 3616 Lillie St., Fort Wayne, Ind., as an aid in sealing envelopes, moistening gummed tape, labels, seals and other gummed surfaces. Added to moistening water it reduces or eliminates surface tension. It is recommended for any type of manual or automatic sealing device. It is available in two-ounce dropper bottles for office use, and in quarts and gallons for industrial sealing operations.

Prominent Users of Strathmore Letterhead Papers: No. 71 of a Series



The BAYER COMPANY

knows the value of the

RIGHT IMPRESSION

Bayer Aspirin, expert in making impressions, never tried to market their product under its correct chemical name, *monoaceticacidester of salicylic acid*. They renamed it aspirin. Recently, they repackaged their entire line to give a smart modern impression and to rate added counter display in streamlined stores.

Bayer has enhanced their public's impression of their company by streamlining their plant and their package. One impression they *did not need to change*: the impression made by their letterhead. Long ago, they chose Strathmore Bond to give the right impression of their distinguished house to prospects and customers.

Often your letterhead is your prospect's first impression of your firm. Does it make a good one for you? If not . . . ask your printer to submit new designs on Strathmore letterhead papers.

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Bond.

STRATHMORE

MAKERS
OF FINE
PAPERS

Strathmore Paper Company, West Springfield, Massachusetts

PERSONALITIES

in the NEWS

Edward R. Joubert has joined the Puget Sound Power & Light Co., Seattle, as Assistant Purchasing Agent according to a recent announcement by Luther McIver, manager of purchases for the company.

William P. Schaefer has been named Director of Purchases of Grief Bros. Co., Chicago, Ill. Previously he served as Purchasing Agent. He has been with the company since 1919 when he started as an office boy. As head of the purchasing department he coordinates the purchasing for the company's 300 mills and assembly units located in various parts of the country.

J. H. Blakney, Director of Purchases for the Colgate - Palmolive - Peet Co., since 1934, has been elected Vice President in charge of Purchases at a recent meeting



J. H. Blakney

of the board of directors. Mr. Blakney, who has spent all his business life with the Colgate-Palmolive-Peet Company and affiliated firms, joined the B. J. Johnson Soap Company in Milwaukee, Wis., in 1914. Later he worked for the Palmolive Peet Co. before it was consolidated into the present organization. He has been president of the Oil Trades Association of New York since 1946.

H. W. Ledebur, president of the Purchasing Agents Association of Northwestern Pennsylvania spoke recently before the members of the Rotary Club in Jamestown, N. Y. In his talk he outlined the duties and responsibilities of a purchasing agent in relation to management.

Frank Morris, General Purchasing Agent of the Texas Co., New York, N. Y., was a speaker at the annual four-day meeting of the Petroleum Equipment Suppliers' Association which began on May 4.

Carl Fisher has been appointed Purchasing Agent for Superior Foundry, Inc., Cleveland, Ohio, succeeding Morrell Stark, deceased. Associated with the company since 1934, he has worked in the payroll, production, and timekeeping departments. During the war he acted as a foreman in the production molding department. He is a member of the American Foundrymen's Association.

T. M. Haddock has been named District Purchasing Agent of the Eastern District by the American Steel & Wire Co., subsidiary of the United States Steel Corp., with offices in Worcester, Mass. Simultaneously it was announced that Otto C. Langenhan has been appointed Acting Purchasing Agent in Cleveland. He is succeeded as chief clerk and buyer by Frank J. Vaigl. Mr. Haddock joined the American Steel & Wire Co. as a mail boy in 1916 and held a number of positions before becoming assistant district purchasing agent in September, 1945, and Cleveland district purchasing agent in January, 1945. Mr. Langenhan started working for the company in 1907 as a clerk in the purchasing department and has served as chief clerk and buyer since 1945. Mr. Vaigl who has become chief clerk and buyer has been with the company since 1917 when he started as a clerk in the purchasing department. In 1924 he was made a buyer and served in that capacity until his present appointment.

Walter H. Hoffmann, Purchasing Agent of the American Oil & Supply Co., Newark, New Jersey, has been elected vice-president of the company. He entered the company's sales department in 1918, and in 1930 joined the purchasing department. He was appointed purchasing agent in 1938 and has served in that capacity since then.

Harry T. Buchan has been named Purchasing Agent for the Lewyt Corporation of Brooklyn, New York.

Frank J. Larkins, formerly Purchasing Agent, has become Director of Purchasing and Material Control for ACF-Brill Motors Co., Philadelphia, Pa. He has been with the company since 1932. William H. Newton, formerly Assistant Purchasing Agent, succeeds Mr. Larkins as Purchasing Agent. Mr. Newton has held various posts in the Purchasing Department since 1929.

E. E. Hawley, formerly secretary and General Purchasing Agent of the National Fidelity Life Insurance Co., Sioux City, Iowa, will be secretary-treasurer of the Lee National Life Insurance Co., of Shreveport, Louisiana, for which a charter has recently been filed. It is expected the company will be in active operation by late summer.

Joseph E. Pfeiffer, formerly general purchasing agent, has been appointed Director of Purchases for the Chrysler Corporation, Detroit, Michigan, succeeding A. P. Hascall who has resigned because of ill health. Mr. Pfeiffer has been associated with Chrysler Corporation and its predecessor, the Maxwell Co., for more than 30 years. He joined Maxwell in 1916 and worked in various purchasing jobs for Maxwell and Chrysler Corp., un-



Joseph E. Pfeiffer

til he became a buyer for the latter company in 1929. During the next 11 years he served in practically every important buying department in the corporation. In 1940 he became staff assistant supervisor and continued in this capacity, in addition to directly supervising the buying activities of several of the company's war jobs, until 1945 when he was made general purchasing agent for the entire corporation.

Paul R. Fields has been named Purchasing Agent of Daily Machine Specialties, Inc., Chicago, Ill. He was previously associated with F. L. Jacobs Company, also of Detroit, where he was in charge of purchasing in addition to being assistant to the vice president in charge of manufacturing. Before joining the F. L. Jacobs Co., he worked for the Chrysler Corp., Dodge Division, for eight years in production-planning.

(Please turn to page 298)

HOT IDEA . . . ON ICE

The manager of a good-sized ice plant installed a skating rink to offset his winter sales slump. It was a hot idea. The rink kept his refrigeration system earning money all winter, gave his employees steady year-round work. The only hitch was that — during the spring and the fall — the Diesel-driven compressor was heavily overloaded.

With Sun oils in service, however, the equipment has operated perfectly for more than 77,000 hours (including two years with spring and fall overload) and is still going strong. In fact, the engine and compressor still have their original pistons, liners, wrist-pins and bearings. Because of this remarkable service record, additional compressor equipment on order will be 100% lubricated by Sun.

This case is typical of what can be accomplished by teaming soundly designed machinery with Sun lubricants. Both have built into them substantial reserves to take care of emergency conditions. Suniso Refrigeration Oils are recognized by most refrigeration engineers as the best products for modern low-temperature refrigeration and air-conditioning equipment. Manufacturers of refrigeration equipment use more Suniso Oils than all other brands combined.

Sun research has developed lubricants, cutting oils, processing aids, waxes, solvents and other "Job Proved" petroleum products that can help you produce more for less. For a complete list or the services of a Sun Engineer, call your nearest Sun office. Or write Department PU-6

SUN OIL COMPANY • Philadelphia 3, Pa.
In Canada: Sun Oil Company, Ltd.—Toronto and Montreal



SUN
"JOB PROVED"
INDUSTRIAL PRODUCTS

(Continued from page 296)

Donald F. Kigar, former mechanical buyer, Detroit Edison Co., Detroit, Mich., has been appointed Assistant Purchasing Agent, according to C. F. Ogden, Purchasing Agent. K. W. Hartwell has been named mechanical buyer, and V. A. Stace, formerly construction buyer is appointed assistant to the purchasing agent. George M. Cox is now construction buyer. Paul A. Van der Meer has been named buyer, handling appliance and special purchase contracts.

Ralph S. Headley, secretary and manager of the National Apple Dryers Association, has joined the purchasing department of General Mills, Minneapolis, Minn., according to C. V. Nelson, Director of Purchases. He will be responsible for the procurement of apples. Mr. Headley has been in the fruit and vegetable purchasing field for almost fifty years, and for six years was with the U.S. Department of Agriculture.

Michael Schwarz, formerly market advisor for Bridgeport Brass Co., has been promoted to Vice-president in charge of Procurement. Before joining the company in 1945 he served as head of the copper division for the War Production Board.

F. F. Henry has been appointed Manager of Purchases for Southern California Edison Co., succeeding J. L. Gray, who retired in February after 43 years' service. C. P. Altland replaces Mr. Henry as assistant manager of purchases.

W. E. Ziegler has been named Director of Purchasing for Fruehauf Trailer Co. of California. Mr. Ziegler, who joined the company in 1929, for several years has been in charge of accounting, shipping, receiving and material control.

R. C. McDonald has been appointed production manager of the Indian Motorcycle Company, Springfield, Mass. As such he is in charge of purchasing, receiving, scheduling, and the controlling and handling of materials.

J. C. Clapinson, Purchasing Agent of Champlain Oil Products Ltd. Montreal, Canada, has been appointed vice president of the company. Mr. Clapinson joined Champlain in 1935 as assistant to the president, and was elected a director in 1942. He has been a member of the Purchasing Agents Association of Montreal since 1940, and has served as secretary, chairman of the publicity committee, and for three years on the executive committee. He is also a member of the Montreal Board of Trade and La Chambre de Commerce.

Erick Bergman has been appointed Purchasing Agent for Sick's Seattle Brewing and Malting Co., Seattle, Wash. He succeeds T. W. Klinefelter who recently resigned to return to the U. S. Navy Supply Corps as a lieutenant commander.

O. F. Heslar, Purchasing Director for the State of Indiana, has been appointed director of the new Division of Public Works and Supply.

P. Willard Nielson has been named Manager of Purchasing of the Ensign-Bickford Co., Simsbury, Conn. He succeeds Frederick D. Houghton who has assumed the position of assistant to the director of the company's recently established New Product Development department. Mr. Nielson first joined the company in the Central Stores department where he progressed to chief stock clerk of the department. During the war years he served as assistant manager of purchasing, continuing in that capacity until his present promotion.

Curtis D. Hart, Purchasing Agent of the Taylor Instrument Co., Rochester, New York, addressed the Sales Executives Club on the topic of "Purchasing, Its Place in the Sales Picture" at a recent luncheon meeting held at the Chamber of Commerce in that city.

Leo A. Wise has been appointed Purchasing Agent of the American Safety Razor Company, Brooklyn, New York, according to an announcement by Nathan Alexander, vice president in charge of purchasing. Mr. Wise joined the com-



Leo A. Wise

pany over 26 years ago as a stock boy in the factory, later becoming a clerk in the purchasing department. He has served as assistant purchasing agent since 1932.

Frank Free, Purchasing Agent of the State of Vermont since 1944, has been re-appointed to that position, following confirmation of his renomination by the State Senate recently.

S. S. Partridge has become Purchasing Agent of Southern States Roofing Co., Birmingham, Ala. He was previously associated with E. I. Du Pont de Nemours & Co., from 1940 to 1946.

H. B. Harris has been named Purchasing Agent of the Alabama Gas Company, Birmingham, Ala.

John H. Corcoran has succeeded William H. McGinness as Purchasing Agent of Cambridge, Mass. Mr. McGinness resigned to assume a post in the city water department. Mr. Corcoran was formerly in the city engineering department.

J. V. Wilson, Purchasing Agent for High Point, N. C., will resign effective June 3, to enter private employment. No successor has been named.

Howard I. Gift has been named Purchasing Agent of the North Coast Electric Co., Seattle, succeeding Stuart Fiskien.

Donald J. Gildea has been appointed Purchasing Agent for the manufacturing division of American Type Founders Co., Elizabeth, N. J., and **Norman C. Irion**, formerly director of purchases for the company has been named general manager of Daystrom Luminates, Daystrom, North Carolina, a subsidiary organization.

Herschel Wilson Purchasing Agent for the Long-Lewis Hardware Company of Birmingham, Ala., has been made a vice-president of the firm.

AMONG THE COMPANIES YOU BUY FROM

Pittsburgh, Pa.—Electric Machinery Mfg. Co., Minneapolis, Minn. R. H. Kutscher has been appointed manager for the Pittsburgh sales territory, succeeding H. L. Renking, now district manager for the Southwest in Dallas, Tex.

Greensboro, N. C.—Automatic Temperature Control Co., Inc., Philadelphia, Pa. Joseph L. Paradis has been appointed sales representative for North and South Carolina and southwestern Virginia, with an office at 8 Springdale Court.

Philadelphia, Pa.—The Falk Corp., Milwaukee, Wisc. Dave S. Ferree has been appointed district manager of the new sales office at 505 Race St., covering the Pennsylvania and Delaware areas.

Mattoon, Ill.—Kuehne Manufacturing Co. Joseph H. Wiley has been named sales manager, succeeding the late Herman C. Schultz.

Matawan, N. J.—Optimus Detergents Co. Paul Conant has been named field service representative, covering Hudson, Bergen, Passaic and Morris counties. Edward G. Mansfield will cover New York city and Essex, Union and Middlesex counties.

Chicago, Ill.—Polak & Schwarz, Inc., New York, N. Y. Midwestern divisional offices at 400 West Madison St., and laboratory and warehouse at 444 West Grand Avenue, have been opened. The division is under the general management of George W. Liddell.

Rochelle Park, N. J.—White Engineering & Manufacturing Co., Inc. H. Cliff Corwin has been appointed sales manager.

Brooklyn, N. Y.—Bobrick Manufacturing Corp., Los Angeles, Calif. Branch office and warehouse reopened at 1214 Nostrand Avenue, under the supervision of James A. Puleo.

Cleveland, O.—Hertner Electric Co. Frank Young has been appointed Ohio district manager.


(Please turn to page 302)

Safeguarding

another new piping
installation with

16" Std. Ladish Ell @ RVS

LADISH Seamless Welding Fittings

With greater emphasis being placed on increasing production... reducing down time... and cutting maintenance costs, more and more piping men are specifying Ladish Seamless Welding Fittings. They find the Ladish  trademark on fittings good insurance for efficient, trouble-free piping operation.

During each step in the manufacture of Ladish Seamless Welding Fittings, rigid inspection procedures assure uniform wall thickness and smooth inner surfaces, free of irregularities. Through exhaustive chemical and physical tests, Ladish metallurgists carefully control metal properties to provide an added protection against brittleness at low temperature, distortion at high temperature, and increased resistance to erosion and corrosion.

These and the important advantages listed below are helping to improve piping performance. When you specify Ladish Seamless Welding Fittings, you get prompt, efficient service from your Ladish distributor... and a full measure of dependability from your piping.

THESE LADISH FEATURES ASSURE DEPENDABILITY

- ✓ Smooth inner surfaces reduce pressure loss—minimize resistance to flow.
- ✓ Weldability is assured by rigid metallurgical controls that guard against harmful impurities.
- ✓ Heat code symbol provides access to complete metallurgical analysis of seamless steel pipe used in each fitting—permanent proof of Controlled Quality.
- ✓ Accurate included angles and dimensions permit fabrication of large complicated sections.
- ✓ Full effective radii and unrestricted circularity improve flow efficiency.

Controlled Quality
FITTINGS

LADISH CO.

CUDAHY, WISCONSIN
MILWAUKEE SUBURB

DISTRICT OFFICES:

New York • Buffalo • Pittsburgh • Cleveland • Chicago • St. Louis • Atlanta • Houston • Los Angeles

SEND TODAY FOR THIS
DIMENSIONAL DATA FOLDER

LADISH CO.

Dept. PG-6

Cudahy, Wisconsin

Please send me the handy 10-page data folder giving dimensions, weights and part numbers of Ladish Seamless Welding Fittings.

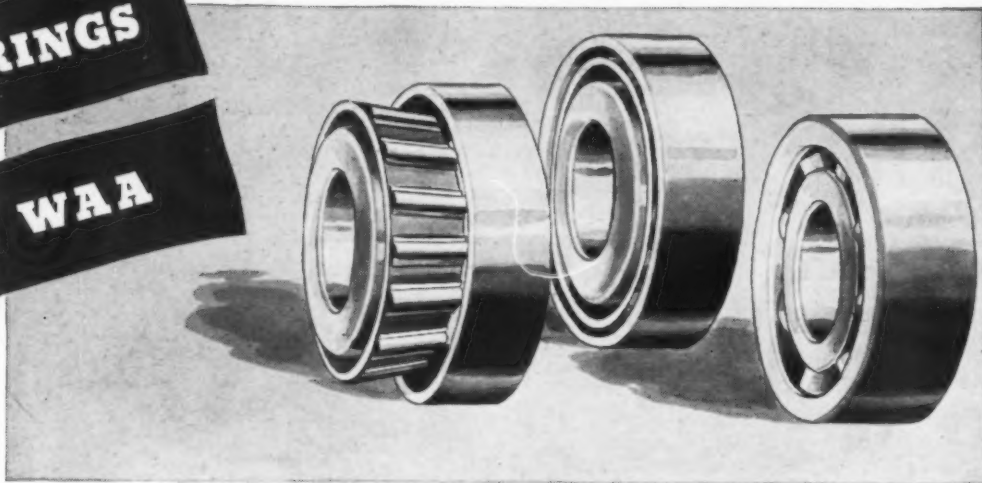
Name.....
Title.....
Company.....
Address.....
City.....Zone...State.....



TO MARK PROGRESS

**START ROLLING
ON BEARINGS
FROM WAA**

SET YOUR OWN PRICE IN SEALED BID SALES



Sales of bearings will be held at frequent intervals. To receive information on future sales, write, wire or phone the Regional Offices listed below asking that your name be placed on their mailing lists.

CINCINNATI • CHICAGO • ST. LOUIS • DETROIT
KANSAS CITY, MO. • CLEVELAND
LOS ANGELES • NEW YORK



Get your bearings from the \$18,000,000 stock now being sold by WAA. Friction and anti-friction bearings and components in all sizes and types are included in this stock. Many sizes are available in production-run quantities. Set your own price on what you need and submit your bid. Get all pertinent information from your nearest Customer Service Center or WAA Regional Office—go there to make your own inspection.

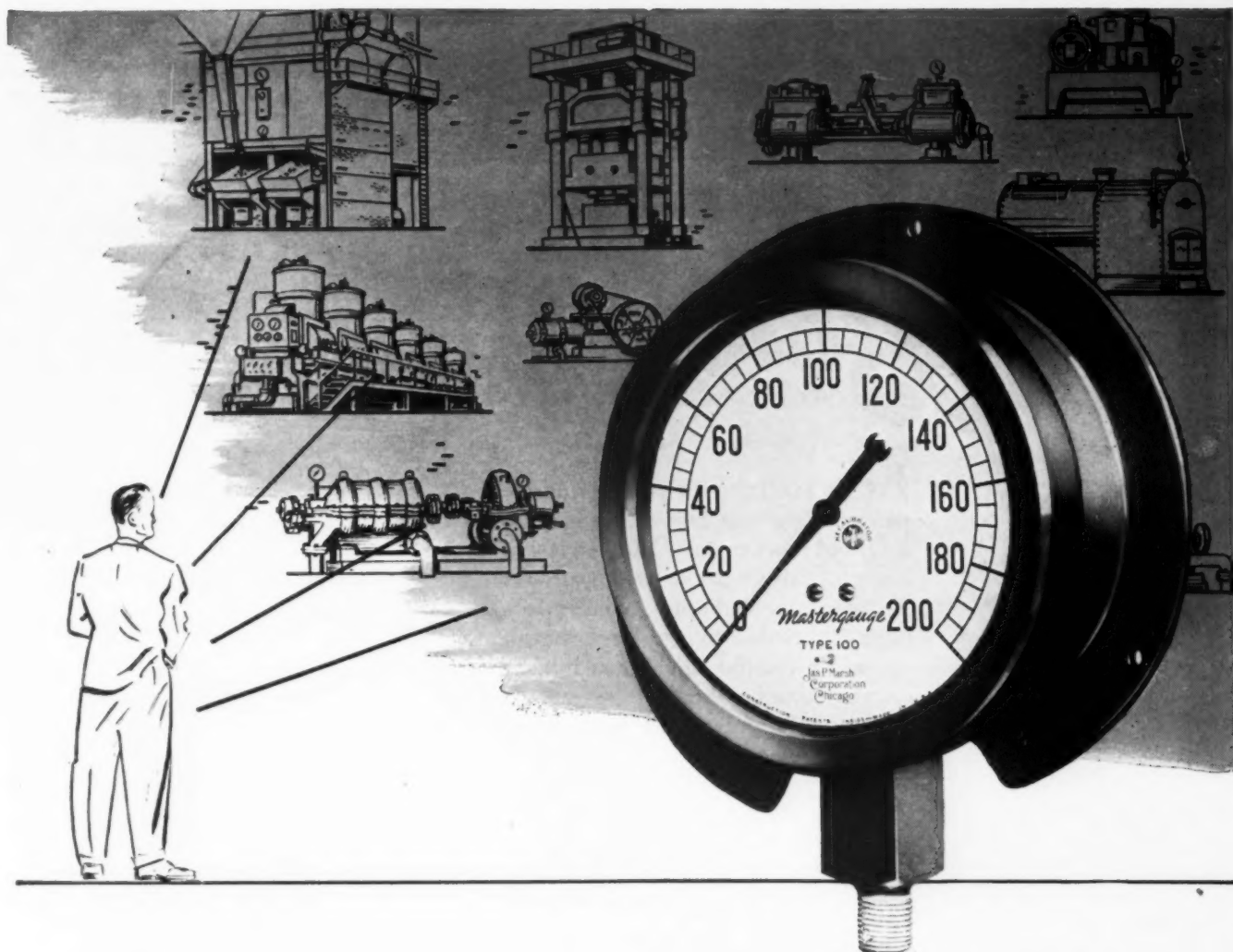
EXPORTERS! Your business is solicited. Much material which is surplus in the United States is urgently needed or is readily salable in other countries. Watch for other offerings, many of them may be of interest to your clients.

OFFICE OF GENERAL DISPOSAL

WAR ASSETS ADMINISTRATION



Offices located at: Atlanta • Birmingham • Boston • Charlotte • Chicago
Cincinnati • Cleveland • Denver • Detroit • Grand Prairie, Tex. • Helena • Houston
Jacksonville • Kansas City, Mo. • Los Angeles • Louisville • Minneapolis • Nashville
New Orleans • New York • Omaha • Philadelphia • Portland, Ore. • Richmond
St. Louis • Salt Lake City • San Antonio • San Francisco • Seattle • Spokane • Tulsa



Between you...and Trouble—

What's going on inside that boiler . . . tank . . . compressor . . . pump . . . forging press? It takes a pressure gauge to tell the story—and a good one to tell it right.

Keep that in mind when you select a gauge. Avoid the "just-stick-on-a-gauge" attitude. Remember that safety and performance depend on the accuracy—the "honesty"—of that gauge. Remember that your old friend, the pressure gauge, stands between you and trouble.

Those who *do* know the importance of accuracy insist on pressure gauges of Marsh quality. Excellent proof of this is the use of Marsh Gauges as original equipment by leading manufacturers of products requiring pressure indication.*

Jas. P. Marsh Corporation, 2035 Southport Avenue, Chicago 14, Illinois

Jas. P. Marsh products include: A full line and range of gauges in pressure, vacuum, compound, altitude, hydraulic, sprinkler, ammonia, ounce-graduated retard, test, and diaphragm types. Dial thermometers in rigid stem and remote reading types. Ask for literature.



The gauge with the "Recalibrator"

Marsh alone has the "Recalibrator"—quickest and best way to correct a gauge that has been knocked out of adjustment by improper handling.

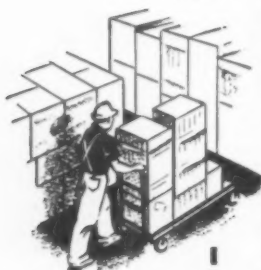
*Subsequent advertisements in this publication will cite typical examples of this.

MARSH GAUGES

"THE STANDARD OF ACCURACY"

HE SAVES TIME
AT EVERY TURN

WITH THIS **Bond** CASTER
REG. U.S. PAT. OFF.

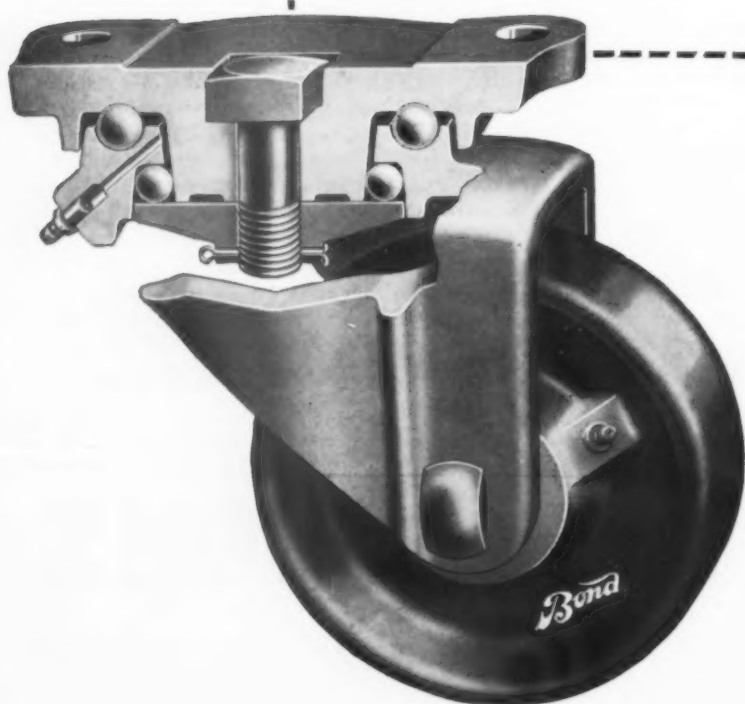


EVERY LOAD moves with less muscle power, costs you less, when it rides on Bond 36-A casters. They swivel at a touch, enable workmen to turn trucks easily in crowded areas. Special double ball race design promotes smooth operation and the rugged Bond caster metal guarantees durability.

Users of Bond casters are assured of unimpeded materials flow because every caster in the Bond line is designed to do a particular job—with the utmost efficiency. You'll find the right caster for your requirements in Bond catalog K-36. Write for it today.

**BOND FOUNDRY & MACHINE CO.
MANHEIM, PA.**

Bond 136-A Caster. Special double ball race design assures easy swiveling. Durable Bond caster metal provides extra long-life. Roller bearing semi-steel wheel. Pressure lubricated. Wheel sizes from 4" to 12" dia.; load capacities from 600 to 1700 lbs. per caster.



New York, N. Y.—Gibson Electric Co., Pittsburgh, Pa. W. M. Hicks, 41 Park Row, has been appointed sales representative, covering the metropolitan area, including northern New Jersey.

New York, N. Y.—Acme Rubber Manufacturing Co., Trenton, N. J. L. J. Amsdell, formerly Western sales manager, has been made Eastern sales manager with headquarters at the company's office, 233 Broadway.

Dearborn, Mich.—Ford Motor Co. W. E. Kimbrough, formerly assistant manager of the Somerville, Mass. sales district, has been appointed manager of the truck section.

Wabash, Ind.—Thermoid Co., Trenton, N. J. A new warehouse has been opened and all business transferred from the key warehouse in Chicago which is no longer in operation.

Cleveland, O.—Thermoid Co., Trenton, N. J. Henry E. Holden has been appointed original equipment sales engineer



Henry E. Holden

for industrial friction material, with headquarters at 17830 Cannon Avenue. He will operate in the Michigan and Ohio area.

Pittsburgh, Pa.—Pennsylvania Salt Manufacturing Co., Philadelphia, Pa. Arthur F. Bixby, heavy chemicals salesman in the Philadelphia office for the past nine years, has been transferred here, replacing C. W. Dermitt who has been named district sales manager in the Cincinnati office.

Chicago, Ill.—Distillation Products, Inc., Rochester, N. Y. A sales and service office of the vacuum equipment division has been opened at 1351 South LaSalle St., covering the Chicago and midwestern area. Tom C. Comer, formerly at the Rochester office, is directing sales activities.

Chicago, Ill.—Flexible Metallic Tubing Co., Philadelphia, Pa. A new sales office and warehouse have been opened at 4352 W. Harrison St., serving the midwestern territory.

New York, N. Y.—Wayne Tool Co., Waynesboro, Pa. National Hardware and Equipment Co., Empire State Building, has been appointed exclusive distributor in New York, New Jersey and the New England states.

(Please turn to page 304)

HARPER fastening

NEWS

HANDY SUMMARIZED CATALOG AVAILABLE!

LISTS MANY OF 5,200 STOCK FASTENINGS IN NON-FERROUS AND STAINLESS STEEL •

To busy engineers and purchasing agents who are building quality and dependability into their products, the Harper summarized catalog will be of great help. It lists many bolts, nuts, screws, washers

and other fastenings of brass, bronzes, Monel metal and stainless steel available from Harper stock—the largest and most

complete anywhere. Harper specializes in Everlasting fastenings made from non-corrosive metals which save maintenance and replacement costs and prevent breakdowns due to rust and corrosion.



NON-FERROUS AND STAINLESS BOLTS • NUTS • SCREWS • WASHERS • RIVETS • NAILS

HARPER
Specializes in
EVERLASTING FASTENINGS

For many years The H. M. Harper Company has been known for its quality of fastenings. Its products are made from the best materials and are made to the highest standards of accuracy. Harper's fastenings are known for their strength, durability, and resistance to corrosion. They are used in a wide variety of applications, from marine to industrial.

OVER 5,000 ITEMS IN STOCK

UNIFORMLY HIGH QUALITY

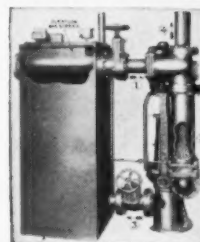
SPECIALS MADE TO ORDER

HARPER
Chicago

BRASS • BRONZES • COPPER • MONEL METAL • STAINLESS STEEL

Write
for a
copy
today!

NON-CLOGGING MARINE PUMP UTILIZES CLEVER DUPLEX ARRANGEMENT



The problem of handling waste material on shipboard and preventing clogging in over-side disposal has been solved neatly by a large manufacture of pumps for all marine applications. The self-flushing principle allows for the straining of solids from solution during an idle cycle of one unit while the other unit pumps. Then the latter unit idles while the former unit pumps, reversing the flow through the strainer and pumping the collected solids overboard. No solids are permitted to reach the pump impeller or clog the circuit. Thus constant discharge is maintained.

Since the waste solutions contain many highly corrosive organic and inorganic substances, basic materials, parts and fastenings used in the pump and fittings must be carefully selected.

Harper Bronze Bolts and Nuts are used to fasten casings and housings where reliable strength and corrosion resistance are required.

The H. M. HARPER COMPANY
2606 FLETCHER STREET
CHICAGO 18, ILLINOIS

Branch offices: New York City, Cleveland, Philadelphia, Los Angeles, Milwaukee, Cincinnati, Dallas
Representatives in principal cities

HARPER
Chicago

HARPER SPECIALIZES IN EVERLASTING FASTENINGS

EVICITION NOTICE TO

Spiders



WHEN Crescent's electric **PALLETIER** moves into your warehouse, spiders move out. Way up where the cobwebs begin, that's where you'll find those extra square feet of storage space you've been looking for. And it's all free! You'll be stacking loads (mounted on pallets) high above the floor—neatly, easily, accurately, safely.

Low in initial cost, the **PALLETIER** quickly pays for itself by permitting you to utilize more of your present space... saves manpower... reduces terminal time for loading and unloading railroad cars, highway trucks and planes.

Send for full descriptive literature today.

CRESCENT TRUCK COMPANY
1150 Willow St. • Lebanon, Pa.

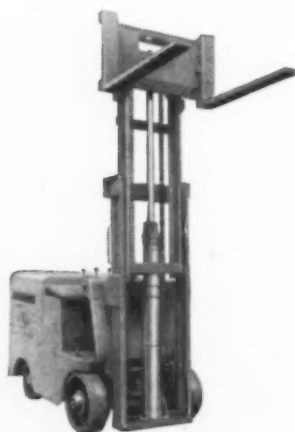
Member Electrical Industrial Truck Association

*Watch the savings
to Electric
Industrial Trucks*

PALLETIER ADVANTAGES

- Operator spots and tiers without stirring from seat.
- All control levers at driver's fingertips.
- Full magnetic control protects against forced acceleration.
- Inspections and adjustments simplified by easy accessibility to all mechanisms.
- Minimum maintenance costs.

*This is the truck to take
loads off your mind.*



ELECTRIC
Crescent
PALLETIER

Midwest—Amgears, Inc., Chicago, Ill. G. E. Merkle, 2508 E. Belleville Place, Milwaukee, has been appointed Wisconsin representative and C. S. Pryor Co., 1654 Hennepin Ave., Minneapolis, Minnesota representative.

Michigan—Le Maire Tool & Mfg. Co., Dearborn, has acquired the patents and manufacturing rights of the Sunstrand 3-wheel Grinder, formerly manufactured by the Sunstrand Machine Tool Co., of Rockford, Ill.

Birmingham, Ala.—Carboloy Co., Inc., Detroit, Mich. The Young & Vann Supply Co., 1731 First Avenue, has been made authorized distributor for Alabama, northwest Florida and southwest Georgia.

Camden, N. J.—Towmotor Corp., Cleveland, O. A factory sales and service branch has been opened at 1171 Cooper



Ray M. Scott, Jr.

St. Ray M. Scott, Jr. is supervising sales activity and William Wilhelm is service manager.

Buffalo, N. Y.—Federal Machine and Welder Co., Warren, O. Herman A. Grishkat has been appointed district manager in northern New York State, and Berkshire County, Mass. His office is at 611 Jackson Building.

Pittsburgh, Pa.—Hagan Corp. and Hall Laboratories. W. H. Stewart, formerly Seattle service manager, has been re-assigned to the home office as sales engineer for combustion control and boiler water conditioning.

Chicago, Ill.—National Can Corp., New York, N. Y. A new sales office, servicing the general and sanitary line trade in the western division, has been opened in the Champaign Building, 37 South Wabash Avenue.

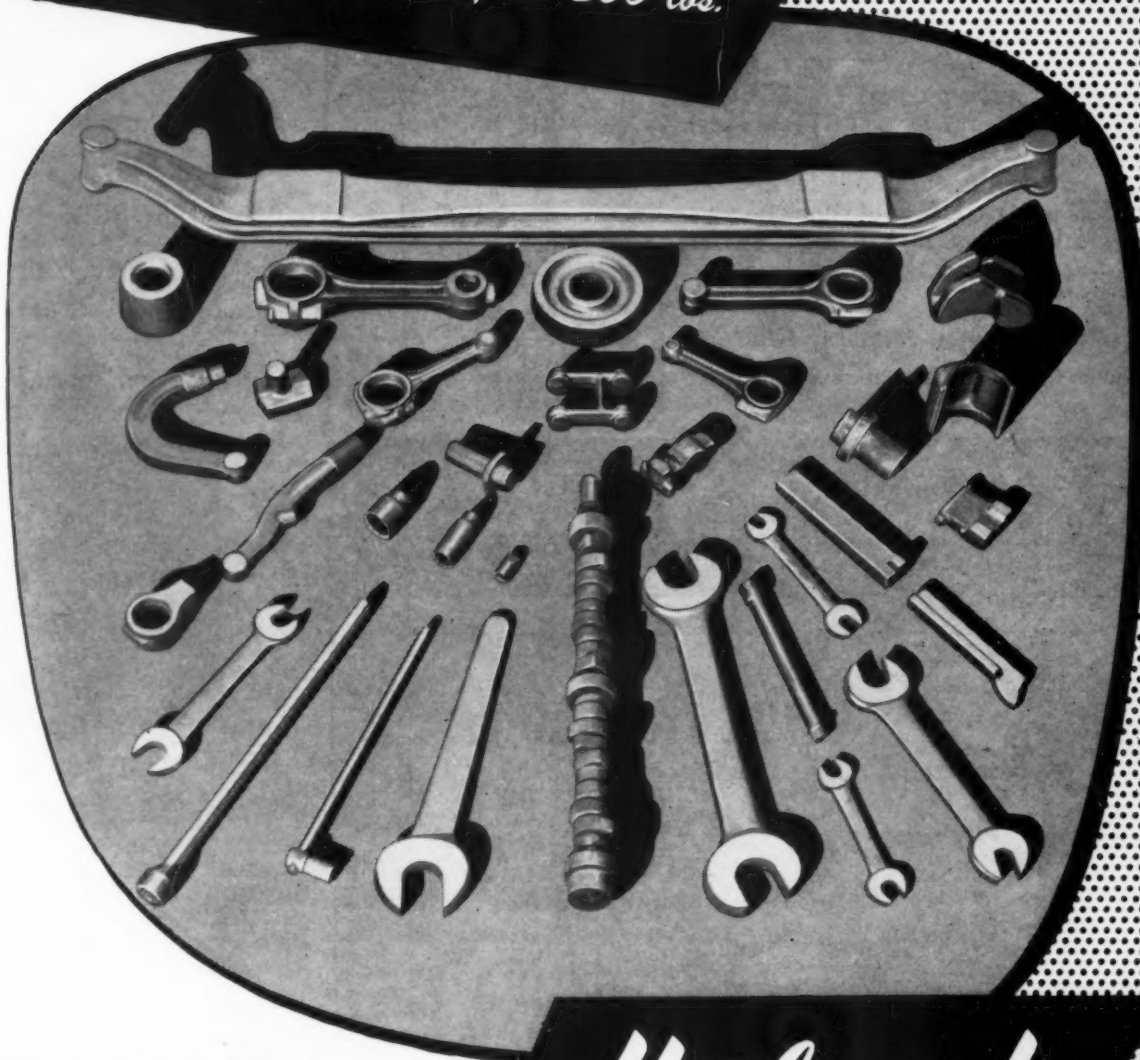
Peoria, Ill.—R. G. LeTourneau, Inc. Robert P. Nichols has been appointed assistant domestic sales manager.

Latrobe, Pa.—Vulcan Mold & Iron Co. Grant F. Neely and Harry J. Anderson have been named sales engineers as part of an enlarged sales program by the company.

(Please turn to page 306)

DROP FORGINGS

any size or shape up to 200 lbs.



Herbrand precision forgings possess an enduring inbuilt stamina because they are scientifically heat treated by definite process in the latest heat treat furnaces. If you require quality drop forgings in production quantities, Herbrand is an excellent source of supply. Your inquiries are solicited.

Herbrand



THE HERBRAND CORPORATION

FREMONT, OHIO

**You can do any of these jobs
FASTER-EASIER-BETTER
with Strand Flexible Shaft Machines**

**Grinding • buffing • polishing • sanding
drilling • reaming • rotary filing • wire
brushing • screw driving • nut setting
wood filler rubbing • rasping**

Strand machines provide PORTABLE rotary power at CONSTANT speeds with dependable results and less operator fatigue. Ruggedly built for years of steady use. Hundreds of attachments easily interchanged—125 types and sizes—vertical and horizontal models from 1/8 to 3 H.P.

DISTRIBUTORS IN ALL PRINCIPAL CITIES

Send for CATALOG showing complete line



M-5



**Full Production
depends on
satisfied
workers**

THIS is a year when America's production counts! That's why so many executives and shop superintendents are seeking new refinements and methods to assure increased output capacity.

An important factor is the convenience of a constant supply of refreshing, cool water strategically located throughout the plant. For years industry has depended on Halsey Taylor Coolers and Drinking Fountains, with their distinctive advantages of sanitation and health-safety! Get our latest catalog.

THE HALSEY W. TAYLOR CO., WARREN, OHIO

Halsey-Taylor COOLER FOUNTAINS



F-3

New York, N. Y.—Atlantic Powdered Metals, Inc. L. Faller has been appointed sales manager.

Chicago, Ill.—Tube Turns, Inc., Louisville, Ky. Offices have been moved to Fairbanks-Morse Building, 600 South Michigan Avenue.

Los Angeles, Calif.—B. F. Goodrich Chemical Co., Cleveland, O. The West Coast sales office has been moved to 714 West Olympic Blvd. R. E. Bitter, sales representative, is in charge.

Chicago, Ill.—Borg-Warner International Corp. John Gulick has been appointed Chicago office manager.

Palisades Park, N. J.—Farris Engineering Corp. Paul Robinet has been appointed sales manager.

Pittsburgh, Pa.—Rollway Bearing Co., Inc., Syracuse, N. Y. A new sales office has been opened in the Renshaw Building, 9th St. at Liberty. John B. Bell, sales representative, formerly of the home office, is in charge.

Philadelphia, Pa.—Pennsylvania Salt Manufacturing Co. William P. Drake,



William P. Drake

manager of sales of the special chemical division, has been appointed vice-president.

Cincinnati, O.—Dravo Corp., Pittsburgh, Pa. Daniel B. Bencoter has been appointed sales engineer for the machinery division, with offices in the Southern Ohio Bank Building.

Cleveland, O.—Eaton Manufacturing Co. H. J. McGinn has been elected vice-president and director of sales. Mr. McGinn joined the company in 1913.

San Francisco, Calif.—Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J. The company will be represented in this area by Asbestos Co. of California, 941 Sixteenth St. New offices and warehouse facilities for Raybestos-Manhattan, Inc., have been occupied at 131 Mission St.

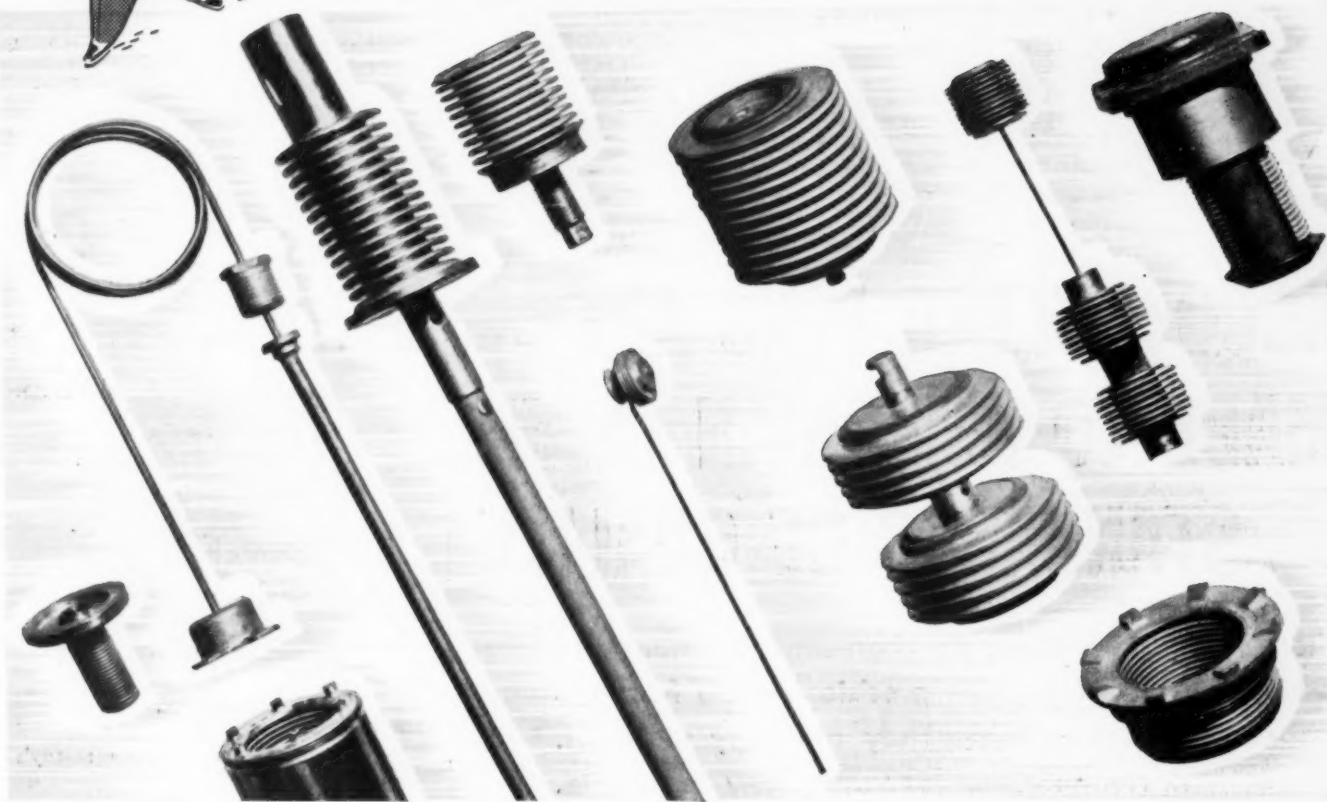
St. Louis, Mo.—Hercules Powder Co., Wilmington, Del. Synthetics department sales office opened at 3615 Olive St. The naval stores office, formerly at 611 Olive St., will move to the new address. Jordan P. Snyder, formerly of the Chicago office will be technical sales representative. Joseph M. Carbonara continues as naval stores representative.

(Please turn to page 308)



IDEAS

...for the product you're planning!



IF YOUR PRESENT product development plans require the accurate control of temperatures or pressures, the regulation of valves, the movement of switches or shutters . . . you're invited to bring your problems to Fulton Sylphon's bellows engineers.

Here, we specialize in creating and producing bellows and bellows assemblies of just the right metals, and in just the right sizes

and styles to meet the specific requirements of customers throughout industry.

Backed by over 40 years' experience in this field, our engineering staff and extensive production facilities are at your disposal . . . for the development of an idea or the manufacture of large volume orders.

Catalog LO-1300 gives complete information. Write for your copy today.



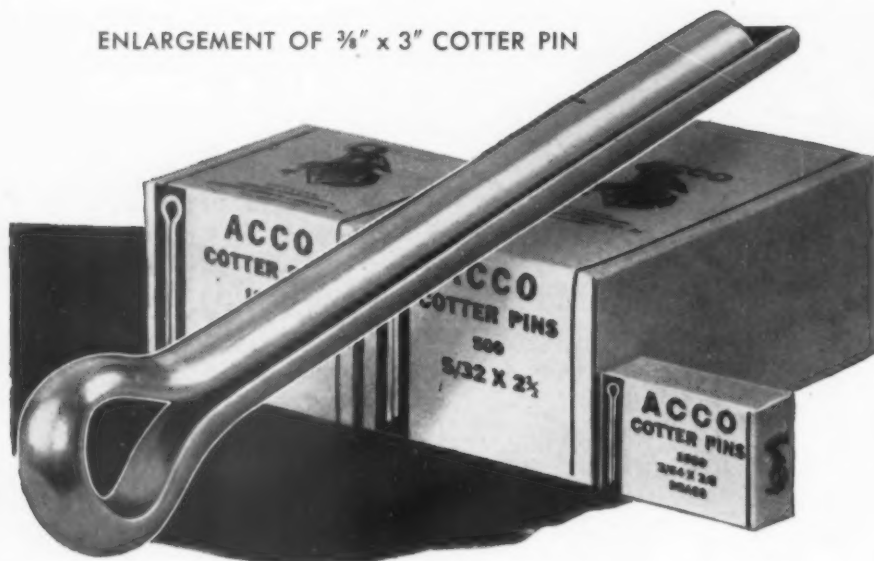
FIRST WITH BELLOWS

THE FULTON SYLPHON CO. KNOXVILLE 4, TENN.

FULTON SYLPHON

Temperature Controls • Bellows • Bellows Assemblies

Canadian Representatives, Darling Brothers, Montreal

ENLARGEMENT OF $\frac{3}{8}$ " x 3" COTTER PIN

ACCO COTTER PINS ARE MADE TO AMERICAN CHAIN STANDARDS OF QUALITY

There's more to a cotter pin than simple dimensions.

ACCO cotter pins are precision-made from accurately drawn wire. They are easy to insert. They fit the hole size for which they are made. Prongs spread easily and hold tight. And they are packed in substantial boxes, clearly labeled.

YORK, PA.—American Chain makes two types of cotter pins in a full range of sizes. In addition to the ACCO (regular type, shown above) American offers the CAMPBELL HAMMERLOCK, which locks positively and permanently by simply striking the head with a hammer—a distinct advantage on a production line.

Look to American for sound quality, whether it is cotter pins—electric or fire-welded chain—any type of weldless chain made of formed wire or stampings—chain fittings, attachments and assemblies—repair links—hooks.

Get in touch with your American Chain Distributor.

ACCO



York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia,
Pittsburgh, Portland, San Francisco, Bridgeport, Conn.

**AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE**

In Business for Your Safety

Philadelphia, Pa.—The Foxboro Co., Foxboro, Mass., has announced that its facilities for the servicing of Dr. Th. Horn portable tachometers have been acquired by the James G. Biddle Co., 1316 Arch St.

Philadelphia, Pa.—Philco Corp. John M. Otter, for three years sales manager of the radio division, has been promoted to general sales manager. Mr. Otter has been active in sales work with the company since 1926.

Metropolitan New York—Henry Disston & Sons, Inc., Philadelphia, Pa. William D. Anderson has been named industrial sales representative for metropolitan New York and northern New Jersey. L. W. Jander, who previously served this territory, has been transferred to the home office.

Cincinnati, O.—Cincinnati Milling Machine Co. Swan E. Bergstrom, sales manager, has been elected to the board of directors of Cincinnati Milling and Grinding Machines, Inc., the company's sales subsidiary.

Seattle, Wash.—John A. Roebling's Sons Co., Trenton, N. J. A. R. Robinson has



A. R. Robinson

been named manager of the company's branch.

Chicago, Ill.—Electric Products Co. New district office opened at 407 South Dearborn St., with Robert R. Kovach as district manager for sales and service in that territory.

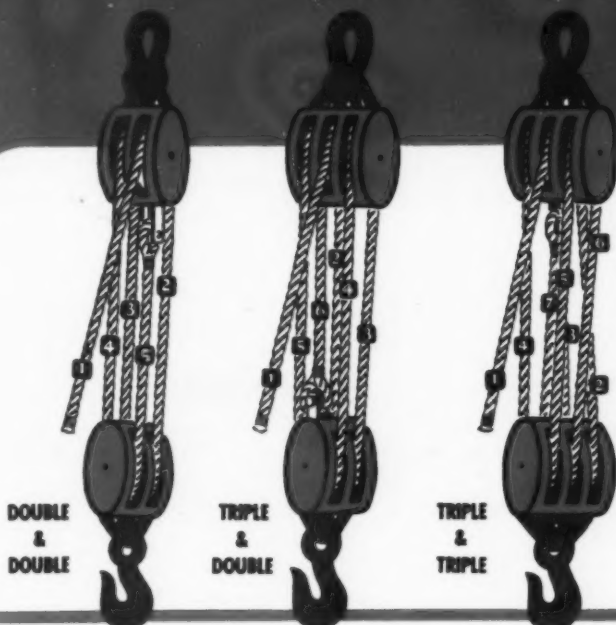
Cleveland, O.—Sylvania Electric Products, Inc. B. A. Cotharin, formerly manager of the East Central division, has been appointed Eastern special accounts manager. George W. Field, Jr., formerly manager of the California division succeeds Mr. Cotharin. Ralph Niedringhaus, transferred from Atlanta, Ga., has been appointed field representative covering the Cleveland, Youngstown and Akron territory.

New Britain, Conn.—The Stanley Works. Harrison C. Bristoll, general manager of the steels trapping division has been elected vice-president.

Boston, Mass.—Monsanto Chemical Co., St. Louis, Mo. A new sales office to handle regional sales of organic chemicals, phosphates, alcohol and dry ice, and serve as a divisional branch for the company's export sales and shipping department, has been opened at 140 Federal St., headed by Thornton Jesdale.

(Please turn to page 311)

REEVING TACKLE BLOCKS



PROPER REEVING OF TACKLE BLOCKS and SAFE WORKING LOADS

a
PLYMOUTH
Lifesaver

A tackle block is not designed to safely carry as heavy a load as the rope of proper size and quality that runs through it. Overloading an overhead block is a deadly hazard to men below. The breakage of any overloaded block may destroy valuable property.

To protect lives and loads, check weights of tackle loads against the chart below. For further useful information, ask your Plymouth Rope Supplier—or write us—for full data on How to Put Rope to Work in Industry.

Plymouth Cordage Company
Plymouth, Massachusetts

REEVING TACKLE BLOCKS

Lead line and bucket line should come off a middle sheave when blocks contain more than two sheaves. The tackle should be reeved so that the upper and lower blocks will then be at right angles to each other, eliminating the tendency to tip and the accompanying losses in efficiency.

SAFE WORKING LOADS FOR COMMERCIAL BLOCKS

REGULAR MORTISE INSIDE IRON STRAPPED BLOCKS FOR MANILA ROPE								HEAVY WIDE MORTISE BLOCKS FOR MANILA ROPE							
DIMENSIONS INCHES		WITH LOOSE SIDE HOOKS			WITH SHACKLES			DIMENSIONS INCHES		WITH LOOSE SIDE HOOKS			WITH SHACKLES		
LENGTH SHELL INCHES	FOR DIAMETER ROPE	DOUBLE AND SINGLE POUNDS	TWO DOUBLES POUNDS	TWO TRIPLES POUNDS	DOUBLE AND SINGLE POUNDS	TWO DOUBLES POUNDS	TWO TRIPLES POUNDS	LENGTH SHELL INCHES	FOR DIAMETER ROPE	DOUBLE AND SINGLE POUNDS	TWO DOUBLES POUNDS	TWO TRIPLES POUNDS	DOUBLE AND SINGLE POUNDS	TWO DOUBLES POUNDS	TWO TRIPLES POUNDS
3	3/8	200	300	400	400	800	1,200	6	3/4	1,500	2,000	2,500	1,600	3,000	4,000
4	1/2	400	550	700	800	1,400	1,800	7	1	1,700	2,450	3,200	2,000	3,800	4,800
5	5/8	500	750	1,000	1,100	1,700	2,100	8	1 1/8	2,200	2,900	3,600	2,400	4,700	6,700
6	3/4	1,000	1,500	2,000	1,600	2,400	3,000	10	1 1/4	3,000	3,750	4,500	4,000	7,000	9,000
7	7/8	1,500	2,000	2,500	2,000	3,000	3,700	12	1 1/2	3,600	4,800	6,000	5,000	9,000	12,000
8	1	1,700	2,450	3,200	2,400	3,600	4,400	14	1 3/4	4,400	5,700	7,000	6,500	11,000	15,000
10	1 1/8	2,600	3,400	4,200	4,000	5,400	6,400	16	2	6,000	7,500	9,000	8,000	14,000	18,000
12	1 1/4	3,000	3,750	4,500	5,000	8,000	10,000								

These tables are shown through the courtesy of the Boston & Lockport Block Company and show suitable loads for one series of their standard and heavy blocks. These should be used as a guide only in ordering without assuming any responsibility, as the loads will vary between blocks in the manufacturer's line and as between blocks in other manufacturers' lines, and it should be also noted that these are suitable working loads for blocks and not for rope. Safe working loads for rope are higher than the safe working load for blocks.

ROPE SIZES *and* STRENGTHS

NOTE: These specifications are for three strand rope with standard lay. To figure safe loads use at least a 5 to 1 safety factor.

NOMINAL SIZE			WEIGHT PER 100 FEET (NET)	LENGTH NO. OF FEET PER POUND	GROSS WGT. APPROXIMATE FOR FULL COIL	FEDERAL SPECIFICATION TR-601a (MANILA ROPE)	FEDERAL SPECIFICATION TR-631** (No. 1 SISAL ROPE)
THREADS	CIRCUMFERENCE	DIAMETER					
	Inches	Inches	Pounds	Feet	Pounds	Pounds	Pounds
6-Fine	9/16	3/16	1.40	71.6	50	450*	360*
6	3/4	1/4	1.92	52.2	50	600*	480*
9	1	5/16	2.71	36.9	50	1,000*	800*
12	1 1/8	3/8	3.77	26.5	50	1,350*	1,080*
15	1 1/4	7/16	5.15	19.4	63	1,750	1,400
18	1 3/8	15/32	6.14	16.3	75	2,250	1,800
21	1 1/2	1/2	7.36	13.6	90	2,650	2,120
24	1 3/4	9/16	10.2	9.8	125	3,450	2,760
27	2	5/8	13.1	7.65	160	4,400	3,520
30	2 1/8	11/16	14.7	6.82	180	4,900	3,920
33	2 1/4	3/4	16.4	6.12	200	5,400	4,320
	2 1/2	13/16	19.1	5.23	234	6,500	5,200
	2 3/4	7/8	22.0	4.54	270	7,700	6,160
	3	1	26.5	3.78	324	9,000	7,200
	3 1/4	1 1/16	30.7	3.26	375	10,500	8,400
	3 1/2	1 1/8	35.2	2.84	432	12,000	9,600
	3 3/4	1 1/4	40.8	2.45	502	13,500	10,800
	4	1 5/16	46.9	2.13	576	15,000	12,000
	4 1/2	1 1/2	58.8	1.70	720	18,500	14,800
	5	1 5/8	73.0	1.37	893	22,500	18,000
	5 1/2	1 3/4	87.7	1.14	1,073	26,500	21,200
	6	2	105.	.949	1,290	31,000	24,800
	6 1/2	2 1/8	123.	.816	1,503	36,000	28,800
	7	2 1/4	143.	.699	1,752	41,000	32,800
	7 1/2	2 1/2	163.	.612	2,004	46,500	37,200
	8	2 5/8	187.	.534	2,290	52,000	41,600
	8 1/2	2 7/8	211.	.474	2,580	58,000	46,400
	9	3	237.	.422	2,900	64,000	51,200
	9 1/2	3 1/8	264.	.379	3,225	71,000	56,800
	10	3 1/4	292.	.342	3,590	77,000	61,600
	11	3 1/2	360.	.278	4,400	91,000	72,800
	12	4	427.	.234	5,225	105,000	84,000

Standards: Smaller sizes of ropes are usually ordered by the number of threads, the larger sizes by circumference. 6, 9, and 12-thread rope is packed in standard 25 and 50 lb. coils. All larger sizes are put up in full coils of 200 fathoms—in half coils of 100 fathoms. One fathom equals six feet.

*IN THE FOUR SIZES INDICATED BY A STAR, present-day Plymouth Manila Rope and Plymouth Sisal Rope have a minimum breaking strength slightly under that shown in the Federal Specification (TR-601A) columns.

**The figures shown in this column are 80% breaking strength of Manila rope. Federal Specification TR-631 Amendment 2, dated March 15, 1944 permits this minimum breaking strength to be reduced to 75% of that of Manila.

FREE! Plymouth will gladly mail you upon request additional copies of this valuable chart for every department of your plant or shop where rope is used. Foremen and workers will find it useful in protecting life and property—saving rope—cutting costs!

PLYMOUTH CORDAGE COMPANY, PLYMOUTH, MASSACHUSETTS. DISTRICT OFFICES: BOSTON, NEW YORK, CHICAGO, HOUSTON, SAN FRANCISCO. WAREHOUSE STOCKS: NEW YORK, BOSTON, PHILADELPHIA, BALTIMORE, HOUSTON, CHICAGO, SAN FRANCISCO. IN CANADA: SALES OFFICE—CORDAGE DISTRIBUTORS, LTD., TORONTO. MILL—WELLAND, ONTARIO.



THE ROPE YOU CAN TRUST BECAUSE IT IS ENGINEERED FOR YOUR JOB

Kansas City, Mo.—Ford Motor Co., Dearborn, Mich. C. J. Fournier has been appointed manager of parts and service department for the Southwestern region.

New York, N. Y.—Jenkins Bros. C. C. Chamberlain, general sales manager, has been elected a vice-president of the company.

Butte, Mont.—Minneapolis - Honeywell Regulator Co. New office opened in Phoenix Building, with James A. Reynolds as branch manager. Territory includes Helena, Missoula, Bozeman, Anaconda, Cut Bank and Shelby.

Kenosha, Wisc.—Macwhyte Co. Robert P. Tyler, formerly general sales manager, has been elected vice-president in charge of sales.



Robert H. Ehret

Cleveland, O.—Electric Products Co. Robert H. Ehret has been appointed assistant sales manager.

Fargo, N. D.—Snap-on Tools Corp., Kenosha, Wisc. The company's fortieth factory outlet has been opened at 421 N. P. Avenue, with Louis J. Johann, formerly with the Minneapolis branch, as manager.

Springfield, Mass.—Monsanto Chemical Co., St. Louis, Mo. F. A. Abbiati, general manager of sales for the company's plastics division, has been appointed assistant general manager of the division. James R. Turnbull succeeds him as general manager of sales.

Rochester, N. Y.—Bausch & Lomb Optical Co. Ivan L. Nixon, recently named manager of the instrument division, has been elected a vice-president of the company. Mr. Nixon joined Bausch & Lomb in 1907.

INDUSTRIAL DEVELOPMENTS

Engineering Controls, Inc. is the new corporate name of the firm of manufacturing, designing and consulting engineers who, for many years, have operated under the name Pacific Enterprise Products Co. Lloyd C. Harbert, formerly vice-president and general manager, is now president. Main offices continue at 2833 East 11th St., Los Angeles 23, Calif.

(Please turn to page 312)

"KEX" INDUSTRIAL WIPING TOWELS ARE MADE FOR WIPING!



YES SIR, they are uniform, smooth-textured wiping towels—made from new fabric woven for Industrial wiping towels, delivered to you thoroughly cleaned by a special high heat process—on regular schedules as required.

Their soft cotton texture is safe to use on any highly polished or sensitive surface. No hard seams, no hidden grit, no over-looked buttons, such as often turn up in make-shift wipers.

Instead, every KEX Industrial Wiping Towel is made for the important wiping purpose to which you will put it. Edges are bound to eliminate catching onto machinery. Surfaces are smooth and free of lint. They absorb up to six times their weight in grease and oil, and give more wipes per pound than cast-off rags or ordinary wipers.

Rent KEX Industrial Wiping Towels and figure your profits

Nothing to buy—no expensive inventory—just a low monthly rental. The first month you use this service should show a decided saving on wiping costs.

For complete information, see your classified Telephone Directory for nearest KEX distributor, or write KEX National Service, 295 Fifth Avenue, New York 16, N. Y.

"KEX" NATIONAL SERVICE

REG. U.S. PAT. OFF.





"Here is
another example of
SUPERKOOL
superiority for
precision grinding"

... excerpts from
D. A. Stuart Oil Co.
Performance Report
on **SUPERKOOL 31K**

PROBLEM: Precision grinding finish of 4 to 6 micro inches required on compressor valve units, using a 500 grit wheel on Norton Hyprolap machines. Previous mixture of 1 part kerosene and 2 parts red engine oil unsatisfactory.

SOLUTION: Use of a 1 to 1 blend of SUPERKOOL 31K and kerosene.

RESULTS: Operator reported less mist from the machine... Production increased to 200 pieces... Finish improved 2 to 4 micro inches... subsequent tests proved completely satisfactory results by using SUPERKOOL 31K straight on micromatics, and the above dilution on the Hyprolap machines... Foreman and lubrication engineer well pleased... orders for SUPERKOOL 31K to be placed as required.

D. M. Gibson

D. A. Stuart Oil Co., Representative

STUART service goes
with every barrel
WRITE FOR DETAILS



D. A. Stuart Oil Co.
EST. 1905 LIMITED

2727-31 SOUTH TROY STREET, CHICAGO 23, ILL.

Pennsylvania Salt Manufacturing Co., Philadelphia, Pa. recently began operation of new facilities for the manufacture of corrosion proof cements and paints, doubling former capacity, at Natrona, Pa.

Chicago Wheel & Mfg. Co., Chicago, Ill., is building a new plant for the manufacture of grinding wheels in Valparaiso, Ind. The company concentrated on small wheels and mounted wheels during the war and is reconverting by erecting a completely new plant.

Electric Auto-Lite Co., Toledo, O., has bought a war-time propeller plant in Johnson City, N. Y. from War Assets Administration and will convert it to the manufacture of automotive electrical equipment. WAA announced the price as \$2,000,000.

Hercules Powder Co., Wilmington, Del., has opened a new plant at Burlington, N. J., for the manufacture of chemicals for the paint, varnish, lacquer, adhesives and other industries.

Bemis Bro. Bag Co., St. Louis, Mo. has leased certain buildings in the St. John's shipbuilding area, Jacksonville, Fla., and expects to commence operations about



L. L. Conrad

September, upon completion of building alterations and machinery installation. L. L. Conrad, with the company for over thirty-seven years, will manage the new plant.

Mathieson Alkali Works, Inc. estimates its present plant modernization and expansion program at \$9,500,000, not including alteration of the recently acquired ammonia plant at Lake Charles, La.

Lindberg Engineering Co., Chicago, Ill., manufacturer of heat treating furnaces and electrical equipment and the Fisher Furnace Co., Chicago, manufacturer of non-ferrous melting furnaces, refractories and blowers have united. The Fisher organization will henceforth be known as the Fisher Furnace division, Lindberg Engineering Co.

Allied Control Co., Inc., New York, has sold its Chicago plant to the General Transformer Co., and the equipment to S. L. Winternitz & Co. All allied relays will now be manufactured at the company's Plantsville, Conn., plant.

Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J., has developed a conveyor belt with rayon cord plies as a strength member, giving higher tensile strength.

(Please turn to page 314)



ILLINOIS
COIL
SPRING
COMPANY

Offers
Especially Prompt
DELIVERY —
Especially Good
VALUE —

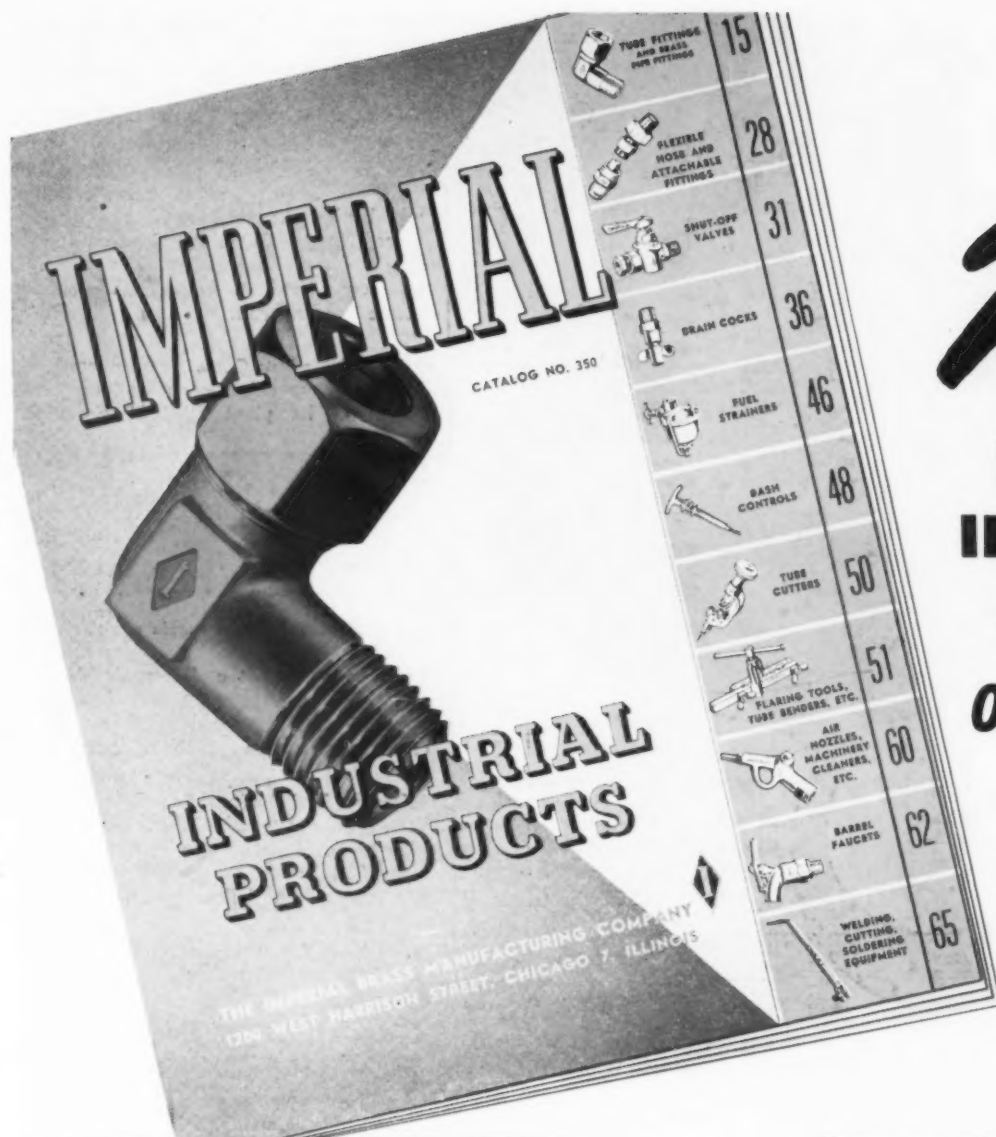
ON ANY TYPE OF HIGH
GRADE MECHANICAL
SPRING
Sizes .005" to 1/2" Diameter Wire



REASON:— we have
special automatic
equipment that enables
us to eliminate opera-
tions on many spring
jobs—cutting costs
materially—with faster,
more uniform produc-
tion. May we quote?
Call or write . . .

TELEPHONE BERKshire 6461

2100 N. MAJOR AVE. CHICAGO 39, ILL.



New

IMPERIAL INDUSTRIAL CATALOG

*On Tube Fittings,
Valves,
Tube Working
Tools,
Equipment*

Now... Finer because they're

FORGED



Imperial leads again with new, finer tube fittings for connecting copper, aluminum and other similar tubing

... these new Imperial Fittings have forged bodies on elbows and tees and Dryseal Pipe Threads on pipe connections.

The superiority of forged brass fittings has long been recognized because:

FORGED FITTINGS ARE STRONGER

FORGED FITTINGS ARE TOUGHER

FORGED FITTINGS ARE CLOSER GRAINED

FORGED FITTINGS ARE MORE UNIFORM

Fully described in Catalog 350.

If you use tube fittings, shut-off valves, tubing tools, fuel strainers or any of the many equipment items shown above, you will want a copy of this new Imperial Catalog No. 350.

It lists over 1100 sizes, types and styles of tube fittings for connecting copper, steel, aluminum and other thin-wall metal tubing from $\frac{1}{8}$ " to $\frac{7}{8}$ " O.D. A handy fitting selector chart describes the method of assembly, applications and advantages of the most popular types. Another illustrated chart tells you how to recognize the various types of fittings. Write for your copy today.

See Your Industrial Supply House

THE IMPERIAL BRASS MFG. COMPANY

512 S. Racine Ave., Chicago 7, Ill.

IMPERIAL



PIONEERS IN TUBE FITTINGS AND TUBE WORKING TOOLS

POWER
PROTECTION
TOUGHNESS
DURABILITY
LONG LIFE
BALANCE

C/R Hammers have malleable iron heads with replaceable coiled rawhide faces.

RAWHIDE is tops for "soft" mallets and hammers. And you can't beat *Chicago Rawhide*. Tightly coiled, specially treated C/R surfaces won't split, crumble or mushroom. They absorb shock, deliver powerful blows, protect delicate surfaces, and stand up under tough use. Always ask for *Chicago Rawhide*.

CHICAGO Rawhide MFG.CO.

1203 ELSTON AVENUE

CHICAGO 22, ILLINOIS

Other C/R maintenance products are: round, flat and twist belting; belt pins and belt lacings; gears, pinions and gear blanks; aprons and hand leathers; hydraulic packings.

International Minerals & Chemical Corp. has begun construction on a new plant for the manufacture of contact sulphuric acid as an addition to its fertilizer and acidulating plant at Lockland, O. Annual capacity is expected to be 45,000 tons.

SKF Industries, Inc., Philadelphia, Pa., will begin operations at its recently acquired Shippensburg, Pa. plant on July 1. The plant will manufacture ball bearing retainers. Fred A. Maser has been appointed superintendent.

Federal Products Corp., Providence, R. I. completed the enlargement and modernization of its plant at 1144 Eddy St.



Federal Products main plant

Machinery from the Reservoir Avenue and Willard Avenue plants has been moved to the renovated building and the entire organization is now under one roof.

Sterling Tool Products Co., Chicago, Ill., has begun construction of a new plant in Melrose Park, Ill. The one-story combined factory and office will contain 95,000 square feet of floor space.

Goodyear Tire & Rubber Co., Akron, O. announces start of operations at the Pathfinder Chemical Corp., Niagara Falls, N. Y., a subsidiary. The 12-acre plant produces vinyl resins for Goodyear's chemical products division at Akron.

Stanley Electric Tools, division of the Stanley Works, has moved into its new six-story building at 480 Myrtle St., New Britain, Conn. The building provides ad-

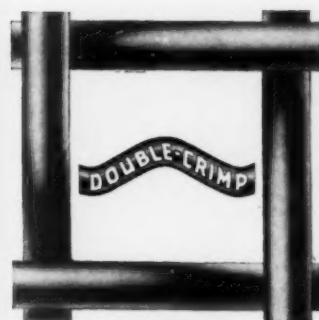


Stanley Electric Tool Building

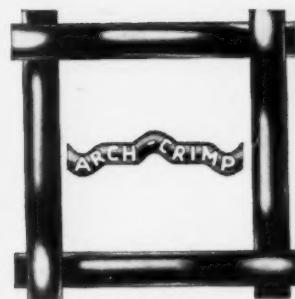
ditional space for manufacturing and assembling portable and electric tools in the Stanley Electric Tool and Stanley-Carter lines. General offices are on the street floor.

Cochrane Corp., Philadelphia, Pa., announces that Herbert H. Haas, member of the company's service department in Philadelphia, has acquired the Henry P. Thompson Co., Cincinnati, O., representative for Cochrane water conditioning equipment in that territory.

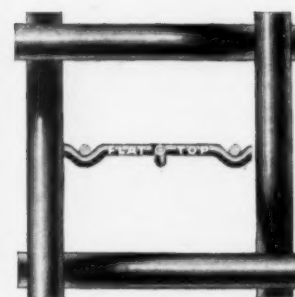
(Please turn to page 316)



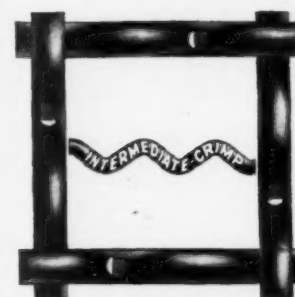
Double-Crimp



Arch-Crimp



Flat-Top



Intermediate-Crimp

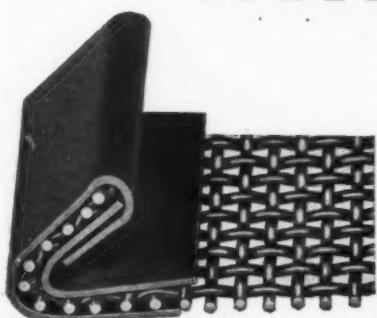
The LUDLOW-SAYLOR WIRE COMPANY

NEWSTEAD AVENUE & WABASH RAILROAD ST. LOUIS 10, MO.

SUPER-LOY LIVE-WIRE SCREEN DECKS and JACKETS

Engineered to your exact requirements.

Order Ludlow-Saylor *Engineered* Hook-Strips for tensioning vibrator-screen decks. They transmit to every tensioned wire an equal share of uniform vibration, evenly distributed throughout the entire screen area. They make screen decks last longer—step-up screen capacities—are easier to handle—quicker to install—need fewer adjustments and renewals.



BOLTS NUTS SCREWS & RIVETS

*Packaged
and Packed*
in keeping with
their High Quality



CLARK BROS BOLT CO.

pay particular attention to their packaging problems, employing only well constructed individual cartons and heavy, new, well mailed boxes and kegs for shipping.

Our product invariably arrives in same neat, attractive form as shipped. Think it over. — It is worth your Consideration.



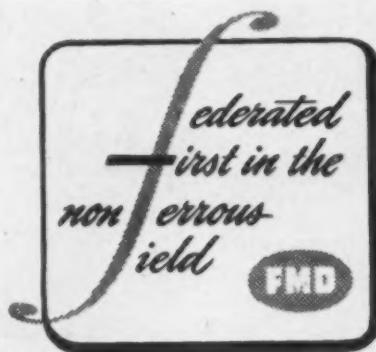
CLARK BROS BOLT CO.
MILDALE, CONN.

G. L. Ohrstrom & Co., New York, N. Y. has acquired all the capital stock of Rotary Lift Co., Memphis, Tenn. No changes in policies, products or distribution will be made.

1 1 1

FEDERATED METALS LAUNCHES NEW TRADE MARK

Illustration shows new trade mark and slogan which has just been adopted by the Federated Metals Division of the American Smelting and Refining Company.



Federated has 11 manufacturing plants and 25 sales offices, and its line embraces tin bronzes, yellow and red brass, manganese and zinc base alloys, lead alloys and lead products, solders and babbitts, type metals, and others, for the non-ferrous foundry.

1 1 1

MONSANTO PLANS RECONSTRUCTION OF TEXAS CITY STYRENE PLANT

Clearing of wreckage and plans for rebuilding of Monsanto Chemical Company's styrene plant at Texas City, Texas, almost demolished recently when a shipload of ammonium nitrate exploded in the bay nearby, are underway, and subject to further examination parts of the plant may be back in production in six months, according to an announcement by W. M. Rand, president of the company. Under normal conditions — and if no delay of materials occurs — the entire plant could be built within 18 months, Mr. Rand said. He emphasized that parts of the plant could be rebuilt within a considerably shorter period and that some sections may be back in production within 6 to 8 months.

1 1 1

EXCHANGE MANUFACTURING RIGHTS ON HI-STEEL AND COR-TEN

Inland Steel Company has licensed Carnegie-Illinois Steel Corporation and other subsidiaries of U. S. Steel Corporation to manufacture Inland's Hi-Steel, and in return Carnegie-Illinois has licensed Inland to manufacture its Cor-Ten, Joseph

(Please turn to page 318)

management men want facts



There is only one right paper for every job . . . "ordinary" papers often cost industry thousands of dollars. This booklet is a guide to efficient paper selection . . . illustrated by actual case histories.

Write today for "PAPER HAS A FOURTH DIMENSION" . . . you will want it for your materials file.



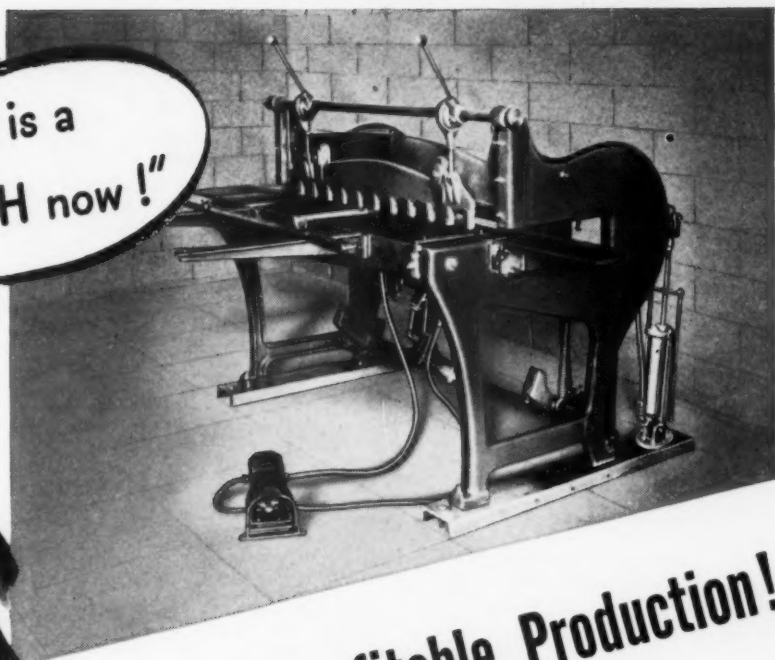
REG. U. S.

PAT. OFF.

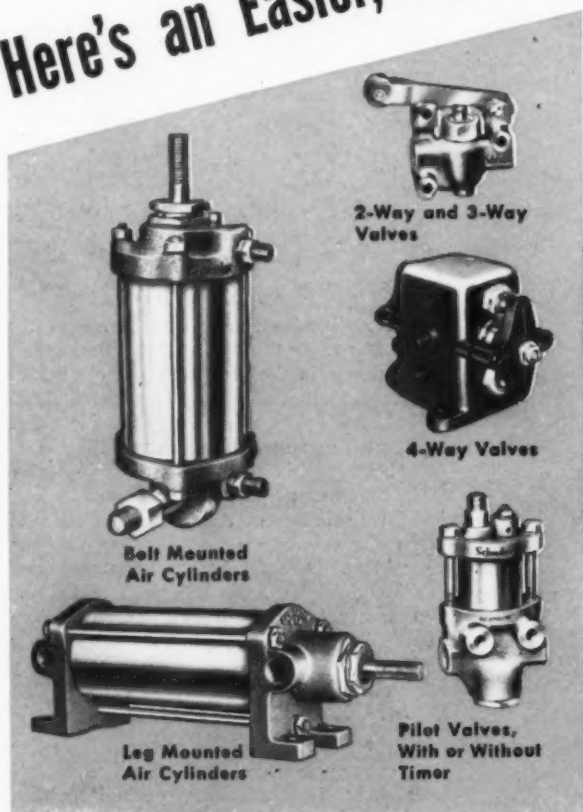
CENTRAL PAPER COMPANY
INCORPORATED

2446 LAKESHORE DRIVE • MUSKEGON, MICH.

BRANCHES IN LEADING CITIES



Here's an Easier, Quicker Answer to Profitable Production!



Can you improve production and safety of manufacturing operations quickly and easily without expensive alterations to plant or machinery?

Yes! By using compressed air, efficiently controlled by Schrader Valves and Air Cylinders, to operate your machines. Take this shearing machine for instance: by converting to air control, production is boosted, operator fatigue eliminated, and there is far greater ease and versatility of operation. Not only that but with air power you can frequently shear heavier gauge metal. This is a typical illustration of what Schrader Valves and Cylinders can do when put to work on shearing machines, power presses, welding machines, kick presses, arbor presses and many other essential machines.

Consider Schrader Valves and Cylinders as production boosters in your plant. Installation can often be made with little or no extra load in your present compressor capacity.

Schrader Air Cylinders and Valves give you efficient control of compressed air. Help you accomplish more—in less time—with less manpower used.

For further information on how these Schrader products can help you, write today to Department 7.

EVERYTHING FOR EFFICIENT AIR CONTROL

Air Cylinders, Operating Valves 2, 3 and 4-way (hand, foot and remote control), Press Operating Controls, Pneumatic Machine Controls (all types), Air Ejection (Knockout) Sets, Quick Acting Couplers, Blow Guns, Air Hose and Fittings, Hydraulic Gauges.

A. SCHRADER'S SON • BROOKLYN 17, N. Y.

Division of Scovill Manufacturing Company, Incorporated

Schrader

PRODUCTS
CONTROL THE AIR



Ask Us To Quote



CAN YOU USE THIS BOOK?

Over 4500 shapes and sizes of name plates for which we have dies in stock are shown in this book. By choosing one of these designs you can effect a material saving. If you or your Engineering Department can make use of it write us now for a copy of "Designs for Name plates"... Your request for quotation is solicited—you will receive a prompt reply.



ETCHING COMPANY OF AMERICA

1520 MONTANA STREET, CHICAGO 14, ILLINOIS, DEPT. C-6

Metal Name Plates, etched or lithographed • Plastic Name Plates, Dials and Panels, lithographed or screened • Etched Metal Scales, Clock Dials, Instrument Panels, Art Novelties, Advertising Specialties • Etched Metal Panels for elevators and architectural uses.

SUBSIDIARY OF DODGE MFG. CORPORATION, MISHAWAKA, INDIANA

(Continued from page 316)

L. Block, Inland Executive Vice President, announced today.

Hi-Steel is a low alloy structural steel which is being used extensively by railroads because it permits lighter weight construction without sacrifice of strength or safety, and is coming into broad use in the automobile industry for stress parts, Mr. Block explained.

He said it also is being used in bulldozers, structural framework, ships, trailers, and other products demanding light weight, high strength, and great resistance to impact, fatigue, abrasion, and corrosion.

As part of the licensing agreement, Inland acquired rights to manufacture Cor-Ten, a low alloy high tensile steel developed by U. S. Steel.

1 1 1

A. G. ZUMBRUN HEADS BRUNNER MFG. COMPANY

Due to the retirement of G. L. Brunner, Sr., from the management of the Brunner Manufacturing Company, A. G. Zumbrun becomes chairman of the board of directors and managing director of the company. G. L. Brunner, Jr., continues his activity as president.



A. G. Zumbrun

Mr. Zumbrun has been active in the company twenty-two years, joining the company in 1925 as auditor, elected as treasurer in 1933 an office which he still holds. He was elected vice president and general manager in December 1945.

During this time, he has been active in the management of the Company and is well indoctrinated in the policies of Brunner.

Alfred D. Sullivan has been appointed Chief Engineer. Mr. Sullivan joined the Brunner Organization in March 1945.

▲ ▲ ▲

MEXICAN INDUSTRIAL DIRECTORY

The first industrial directory of Mexico has been issued by Publicaciones Roland, D. de R. L., Plaza de la Republica No. 6, Mexico, D. F., and sponsored by the Confederation of Industrial Chambers of Commerce of Mexico. (similar to the AMA). The directory includes a listing of all Mexican industrial companies, their addresses, managers, such as president, vice-president, advertising manager and buyer, raw materials used by the company, products manufactured, etc.

(Please turn to page 320)

Here's How **ORCO**

"SURROUNDS" PROBLEMS IN RUBBER

1

ORCO keeps abreast of constant changes in the crude rubber situation

2

ORCO conducts continuous study of all types of synthetic rubbers

3

ORCO develops the best compounding ingredients for each type of synthetic

4

ORCO co-operates with leading technical societies in development work

5

ORCO utilizes latest testing methods and laboratory equipment

6

ORCO maintains specialized engineering service on mold designing

7

ORCO maintains engineering staff specializing on tools and equipment

8

ORCO factory facilities are organized and equipped for large or small volume requirements



We invite your inquiries on specific problems

THE OHIO RUBBER COMPANY

Orco-operation

WILLOUGHBY OHIO

Factories: WILLOUGHBY, OHIO • LONG BEACH, CAL. • CONNEAUTVILLE, PA.

Branch Offices: DETROIT • NEW YORK • CHICAGO • INDIANAPOLIS • CLEVELAND • BOSTON

IF YOUR TARGET IS NET PROFIT



**CLARK'S
MODERN METHODS
AND MACHINES AS**

**PRESENTED IN THIS NEW ISSUE OF
"MATERIAL HANDLING NEWS"
WILL HELP YOU TO
ACHIEVE YOUR
AIM**

CLARK TRUCTRATOR

Division of CLARK EQUIPMENT COMPANY
BATTLE CREEK, MICHIGAN

OTHER PLANTS — BUCHANAN, JACKSON, BERRIEN SPRINGS, MICHIGAN

Dept.
I

Please send me a copy of the Transportation Issue of "Material Handling News."

NAME _____

FIRM NAME _____

STREET & NUMBER _____

CITY & STATE _____

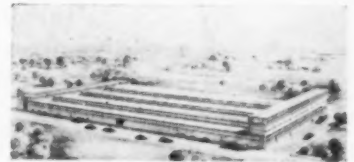
(Continued from page 318)

For U. S. buyers a special Spanish-English dictionary covering most of the words used will be included. Price \$20.00 prepaid to any part of the United States.

1 1 1

GROUNDWORK BEGUN ON NEW NORTON COMPANY PLANT

Ground was broken recently in the first phase construction for the Norton Company's new plant at Worcester, Mass. The plant is being built especially for the manufacture of vitrified grinding wheels and will provide 192,640 square



Architect's drawing of proposed
Norton Company Plant.

feet of working space. Complete with equipment it is expected to cost approximately \$3,500,000. Equipment is expected to be ready by April 1948 and it is planned that the plant will be completed and in operation by July of the same year.

1 1 1

SKILSAW ENTERS PNEUMATIC TOOL FIELD

Proceeding with post war plans of expansion, Skilsaw, Inc., 5033 Elston Ave., Chicago, Ill., announces its entrance into the pneumatic tool field with a new line of 28 models. These include pneumatic hammers, drills, screw drivers, nut runners and die grinders.

With the acquisition of manufacturing facilities in Aurora, Ill., all pneumatic tools will be produced there, leaving the Chicago plant free to continue production of the electric Skil Tool line.

The drills, screw drivers and nut runners are compact and light, with no model longer than 7¼" or heavier than 2¾ pounds. Optional speeds of 800, 1300 and 2100 rpm are available for the runners and drivers. A range of speeds from 800 to 10,500 rpm is available for the drills.

The pneumatic grinders are available in 3 models, intended for die grinding, burring, rotary filing and use with wire size drills. Free speeds of 25,000 rpm are said to be practical for interrupted use because of extra-large, widely spaced ball-bearings and patented design rotor to eliminate wear and resultant vibration. Dimensions for the 3 models are: 7" long, 1½" dia., and slightly over 1 pound in weight.

The pneumatic hammers are available in 3 sizes with 4 models in each size. These tools are adaptable for many applications including riveting, light chipping, beading, caulking, etc. Offset or grip handles and Parker Taper or hexagon nozzles are offered.

It's a Joy Ride for Automakers

(FOR DRIVERS AND PASSENGERS, TOO)



...with AMERICAN PHILLIPS SCREWS

that keep brakes on costs, protect performance, speed up sales

"STEP ON THE GAS" IN PRODUCTION! Why put up with slow, slip-and-slash, "horse-and-buggy" fastening methods when AMERICAN PHILLIPS SCREWS can be driven at TOP SPEED. But speed is only part of the story. American Phillips Screws can't be fumbled, fingers can't be mangled, work can't be wrecked. And driving is automatically straight. So . . . TOTAL TIME-SAVINGS MOUNT AS HIGH AS 50%.

"STEP ON THE GAS" IN PROMOTION! American Phillips Screws give car, boat, appliance (or whatever you make), a "classy chassis" that means more sales thru more *showmanship*! Clothes and hose can't snag. And resistance to vibration makes another talking point. There's an American Phillips Screw in any type or metal which will win these production and promotion "extras" for you, your distributors and dealers.

AMERICAN SCREW COMPANY, PROVIDENCE 1, RHODE ISLAND

Chicago 11: 589 E. Illinois Street

Detroit 2: 502 Stephenson Building

4-WINGED DRIVER CAN'T SLIP OUT
OF PHILLIPS TAPERED RECESS



AMERICAN PHILLIPS *Screws*



ALL TYPES

ALL METALS: Steel, Brass, Bronze, Stainless Steel, Aluminum, Monel, Everdur (silicon bronze)

a Magical DIRT and GREASE Remover

FOR YOUR



WASHROOMS



WALLS AND WOODWORK



FACTORY FLOORS

For Every Factory Cleaning Job
In

ELEKTRO-PURJ-IT
All Purpose
CLEANING COMPOUND

DISSOLVES
IN WATER...

Costs Less Than 2c per Gallon

The proven choice of many as the better, faster CLEANER. Saves labor! Cuts cleaning costs! Added to water makes the proper strength solution for each cleaning job requirement. It's dustless, non-caking—deodorizes, freshens. Gentle for hands, surfaces. Ends need for dangerous fluids.

FREE SAMPLE
Sent on Request

TROJAN PRODUCTS Department
The Diversey Corporation
53W. Jackson Blvd., Dept. P-4, Chicago 4, Ill.

Purchasing Department Reports

(Continued from page 110)

5. Follow up orders, expedite delivery when necessary, or make cancellations.

6. Set up delivery routings, rules for packing, marking, billing, etc.

7. Receive, inspect and send shipments to warehouse, factory or storage. Passing upon invoices as to correctness of prices, terms, etc. for payment.

8. Control Inventory, involving the establishment of maximum and minimum quantities on hand, units in which ordered, handling of records, checking stock, etc.

9. Send Special orders, arising from a variety of causes, but a necessary evil in almost every purchasing routine.

Reports on these procurement functions of the Purchasing Agent's activity will probably be in columnar form, giving information as to quantities on order at last period, how much ordered since then, deductions for amount received and a final column for how much on order now. Management may want to know also how many cancellations were made; what is the total obligation outstanding, in dollars or quantities; how soon, or at what rate are deliveries coming in; separation of "stock" items from "special orders"; inventory figures, by departments or classes, in dollars or items, at regular intervals and with comparisons for last period, or year ago. A price chart for standard items bought, with comparisons, or a review of price trends might be useful to management each month.

Certain proved rules will govern your action in general when setting up forms or reports. They should be made at regular intervals, when most needed by management. They should be brief, but complete, factual, simple so as to be easily understood. Are they useful? If one is found *not* useful, upon careful study of results after trial, throw that one away and try another line of approach that will be better. All reports should be comparative, or should have several columns or sets of facts by which management may be guided. They should be timely, educational, forward looking, out of immediate activity rather than historical. If they can measure or indicate the successful operation of the Purchasing Agent's activity, so much the better, but many reports can not do so directly.

Management should be consulted

(Please turn to page 324)



The palms and fingers of Hood Ventilated Work Gloves are impregnated with tough, specially bonded Neoprene. They're bears for wear and the sturdy cotton backs are ventilated by thousands of natural pores which let air in to keep working hands more comfortable.

Save the working surfaces of vital hands in your industry from the penetrating action of rough, hard, sharp, abrasive materials. Hood's half-century of experience in making quality rubber goods assures better work gloves for you. ORDER FROM YOUR JOBBER NOW. PROMPT DELIVERY.

-HOOD-

HOOD RUBBER CO., WATERTOWN, MASS.
A Division of the B. F. Goodrich Company

SIMONDS GEARS



—TO YOUR ORDER!

SPUR • BEVEL • MITRE • WORM
WORM GEARS • RACKS • PINIONS

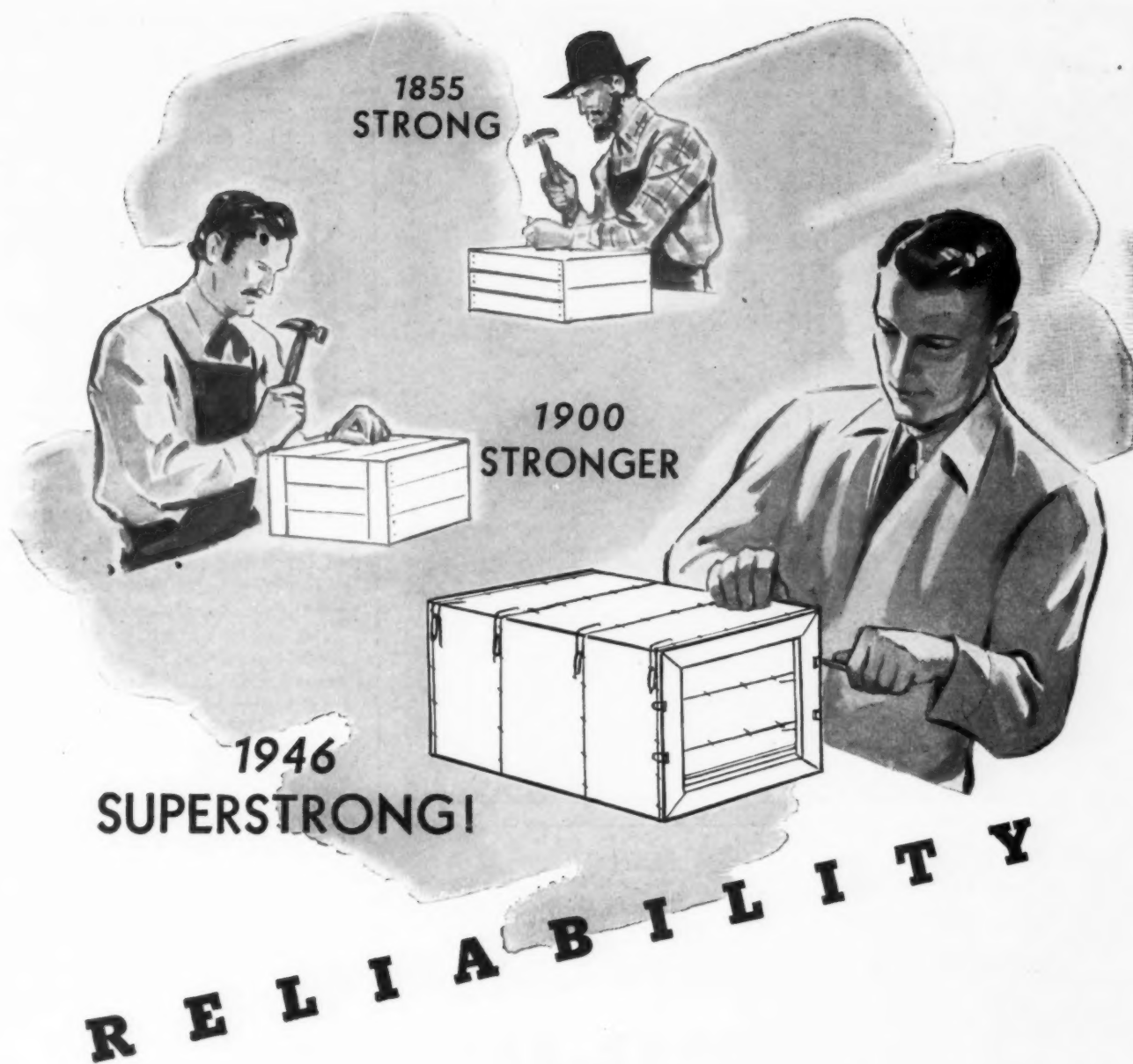
Any material—heavy types—to your specifications. Also distributors for Ramsey Silent Chain Drives and couplings. Over 50 years' experience.

WRITE TODAY!

THE SIMONDS GEAR & MFG. CO.

LIBERTY AT 25TH

PITTSBURGH 22, PENNA.



The SUPERSTRONG box or crate you buy today represents the experience and expert craftsmanship gained in nearly a century of better box making.

Many large users of shipping containers are planning with us for their long range requirements. Our engineering department will be glad to tell you how SUPERSTRONGS—"Bound with Steel"—can solve the shipping problems of your future postwar products.



RATHBORNE, HAIR AND RIDGWAY COMPANY
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

EWC WHEELS

Engineered for YOUR Product

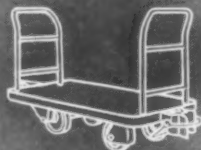
There is a wide variety of EWC wheels and axles for every type of mobile equipment . . . one or several may be ideally suited to your product. For unusual wheel problems, we offer you a complete engineering service, with a thoroughly experienced staff and unexcelled facilities. Write today for complete information.



ELECTRIC WHEEL CO., Quincy, Illinois, Est. 1890

EWC

Industrial Trailers



Model No. 1002
Caster Trailer



Model W-3
3-Ton Capacity



Model WP-5
5-Ton Dump Trailer

Purchasing Department Reports

(Continued from page 322)

frequently about the form and content of reports so as to get just what is needed and it may be necessary to question managers closely to learn yourself what management can find out from your work. Management is not always perfect or even half perfect in planning, or in finding out just what it can get from its own organization. Suggest changes and revamp reports until you and management agree that you have got exactly the right result. Do that periodically, because conditions change from month to month or year to year and management lets things run along, once established. Review the use and necessity for all reports periodically to see if results justify the cost and effort of preparing them.

Get some stock graph papers and set up on them some chart forms. Visual chart presentations have definite advantages in showing progress and comparisons. They show long range and short range trends very clearly. Logarithmic scale charts show percentage gains or losses accurately and are most useful covering a long period of time. Graphic charts, round in form, reading in degrees or percentages, are valuable to show portions of cost or selling price, per dollar, per year, per customer, etc. Charts by months, or days, show how many days' supply on hand, or cost variation by days, or many other combinations. Devise your own charts. Once set up, your office girl can keep them up to date, and they are most valuable to management.

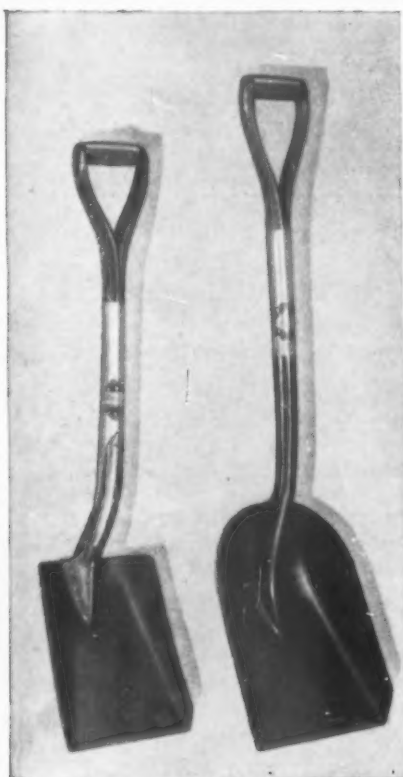
1 1 1

Are Prices Out Of Line?

(Continued from page 104)

far below the prewar relation to the all-commodity price index. From October 26, 1946 to March 22, 1947 prices of oils and fats increased sharply and steadily, the increase amounting to 124% in this period. This rise, however, was so sharp that it brought the level of these prices on March 22, 1947 to a point 20% above their prewar relation to all prices. Here again more adequate supplies have become available and consumers were resisting

(Please turn to page 326)



All blades finished now black except Molders' Shovels and Grain Scoops, which may be furnished with either face or back polished.

Say
"HELLO"

To THESE

**GOOD BUYS
in
SHOVELS**

Get acquainted — right now — with Ingersoll shovels. The *only* shovels, spades and scoops made of Tem-Cross Tillage Steel — with blade edges **GUARANTEED NOT TO SPLIT**. Electrically heat-treated for springy ruggedness. Smooth polished hardwood handles. Specify Ingersoll — "A Borg-Warner Product" — for *all* your shovel needs.

INGERSOLL STEEL DIVISION

Borg-Warner Corporation
New Castle, Indiana

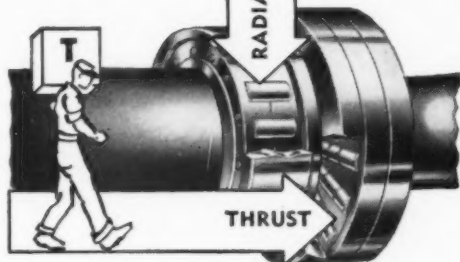
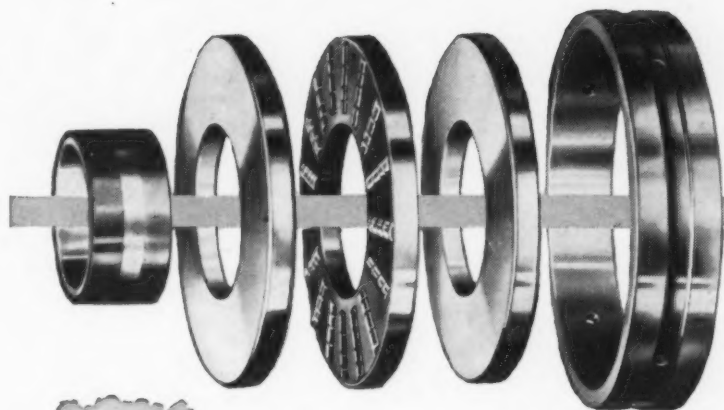
Plants: New Castle, Ind.; Chicago, Ill.;
Kalamazoo, Mich.

INGERSOLL
Shovels

SPLIT YOUR LOAD IN TWO !

with

ROLLWAY RIGHT-ANGLE-LOADED BEARINGS

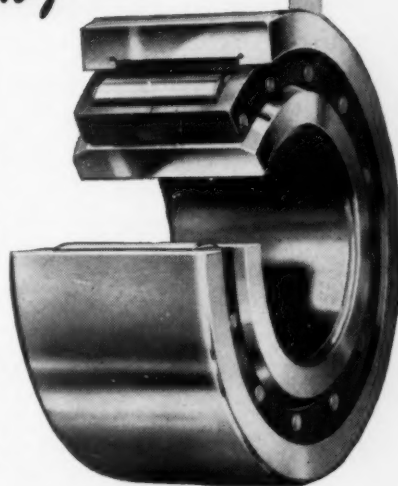


Right-Angle Loading splits compound loads into the two component parts of pure radial and pure thrust... and carries each of these components on separate bearing assemblies. Simple but scientifically sound.

1. Keeps bearings free of complicated stresses
2. Gives longer bearing life with higher capacity
3. Cuts maintenance cost and lay-up time

What Right-Angle-Loading Does!

1. Prevents wedging of rollers and pinch-out. Reduces roller end-rub, with its wearing friction. Holds starting and operating torque at a minimum.
2. Since only pure radial or pure thrust loads can be imposed upon any single bearing assembly, unit pressures are reduced substantially.
3. Since all loads are carried at right-angles to the roller surface, compound or oblique loads are avoided and so are the resultants of the oblique loads.
4. Right-angle loading permits greater radial or thrust load-carrying capacity in any given dimension.
5. Right-angle loading assures solid cylindrical rollers of greater roller mass and uniform roller cross-section... greater resistance to shock loads and vibration... longer life expectancy under continuous heavy-duty service.



Free Service!

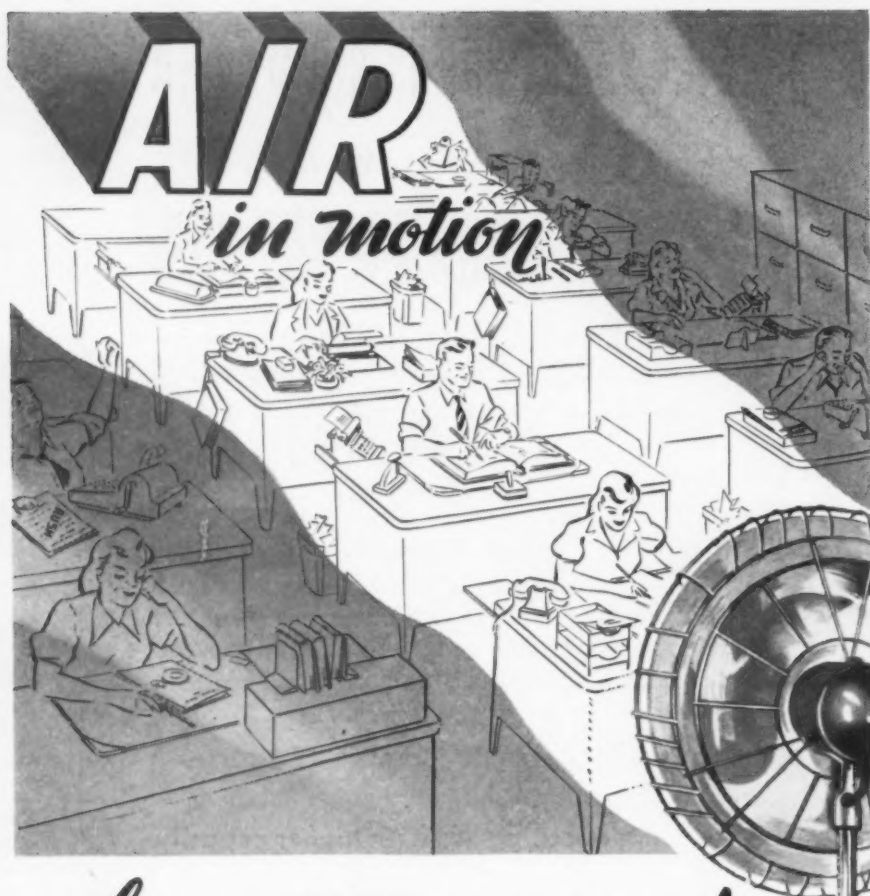
Select the **RIGHT** bearings for **YOUR** particular needs...

Rollway engineers will gladly make necessary calculations, drawings and supply other required information for a complete understanding of your bearing problem. No charge.

ROLLWAY BEARINGS

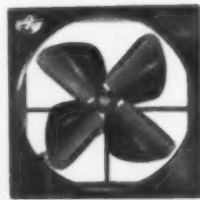
ROLLWAY BEARING COMPANY, INC., SYRACUSE, N. Y.

SALES OFFICES: Philadelphia • Boston • Pittsburgh • Cleveland • Detroit • Chicago • Minneapolis • Houston • Los Angeles



...keeps MEN in action!

If let-down fatigue hits your office or factory, ahead of quitting time, you should do something to stir things up! Start with the stagnant, muggy air that engulfs your workers like a heavy blanket. Keep air in motion—to keep people in action—with Emerson-Electric Fans and Air Circulators. In many an office and factory these sturdy fans actually pay for themselves in increased efficiency and improved employee-relations. Ask your Emerson-Electric Dealer to suggest the most efficient and economical equipment for your particular air-moving problem.



An EMERSON-ELECTRIC FAN for Every Air Moving Job

If yours is a business where greater comfort for customers, visitors or workers will help business, there's an Emerson-Electric Fan to do the job—direct-drive exhaust fans in five sizes from 12" to 30"—heavy-duty belt-drive exhaust fans in 48", 42", 36" and 24" sizes—dependable desk fans with 10", 12", 16" blades—air circulators (large illustration) 24" and 30" sizes with 4 styles of mountings. Write for Folder No. 418.

THE EMERSON ELECTRIC MANUFACTURING CO.

St. Louis 21, Mo.

EMERSON  **ELECTRIC**
MOTORS · FANS · APPLIANCES

Are Prices Out Of Line?

(Continued from page 324)

the payment of the high prices for oils and fats. As a consequence, these prices turned down very sharply after March 22, 1947 so that by April 26, they were only 7% above their prewar relation to all prices.

In general, the trends of prices in the past few months have been downward in those groups where prices have been above their prewar relationship to the general price level and where supplies have increased and consumers have tended to hold back purchases because of high prices. Where supplies are still short relative to demand, prices have continued upward in the months of this year. In the case of paper and pulp prices, for example, where two months ago they were about in line with their prewar relationship, recent increases have lifted the average level of these prices to significantly above their prewar relationship to the all-commodity price index.

The prices which appear to be considerably out of line on the high side at the present time are lumber, paint and paint materials, meats, shoes, and grains. These items are reflected in the current high costs of construction and in important components of the cost of consumer goods. On the other hand, other important groups were either on the line of relationship or on the low side.

This analysis has been made for groups of commodities and not in terms of individual items. Within some of the groups there is considerable dispersion in the price movement of individual commodities. The present distortions could be corrected, aside from any change in the general price level, by the low prices increasing upward while the groups on the high side decline. This would maintain the level of general prices while producing a better balance among prices. It should be noted, however, that many prices which are currently high relative to their relation to all prices are market-dominated types and will quickly readjust under conditions of increasing supplies. On the other hand, a large proportion of these prices which are currently low relative to their past relation to all prices are of an administered type and would be slow to adjust.



This town became world famous..

Greenfield, Massachusetts, is just as beautiful today with its elm-shaded streets and colonial homes as it was 75 years ago. But during those years it has become world famous as the home of fine threading tools. These GTD "Greenfield" tools are used in every part of the world where metal working is done. They have played a key role in the Machine Age that has freed mankind

from drudgery. The modern American threading tool industry was born in Greenfield in 1872 with an idea for a better die. The chief industry of this little town in Pioneer Valley has never ceased pioneering in its field to this day. Wherever threading tools are used, the name GTD "Greenfield" stands for quality.



A major pioneering feat in internal threading was the development by GTD "Greenfield" of the "Gun" Tap. It is made with fewer flutes and a spiral point which causes the tap to cut a curling chip that is "shot" ahead. The design produced a stronger tap and eliminated the tendency of chips to clog the flutes, a principal cause of tap breakage, and stepped up production standards.



GREENFIELD

TAP and DIE CORPORATION
Greenfield - Massachusetts

The GEOMETRIC TOOL COMPANY
New Haven, Connecticut - In Its Fifty-Fourth Year
A DIVISION OF GREENFIELD TAP and DIE CORPORATION

Formula for buying success

PLANT PURCHASING DIRECTORY *Classified Section*

... requires a comprehensive, up-to-date industrial buying guide at your fingertips.

PLANT PURCHASING DIRECTORY meets your exacting specifications for an industrial directory. Containing only those classifications of interest to you—new products . . . suppliers . . . sources and new addresses, P.P.D. fulfills the long standing need for a lightweight, desk size, practical industrial buying guide.

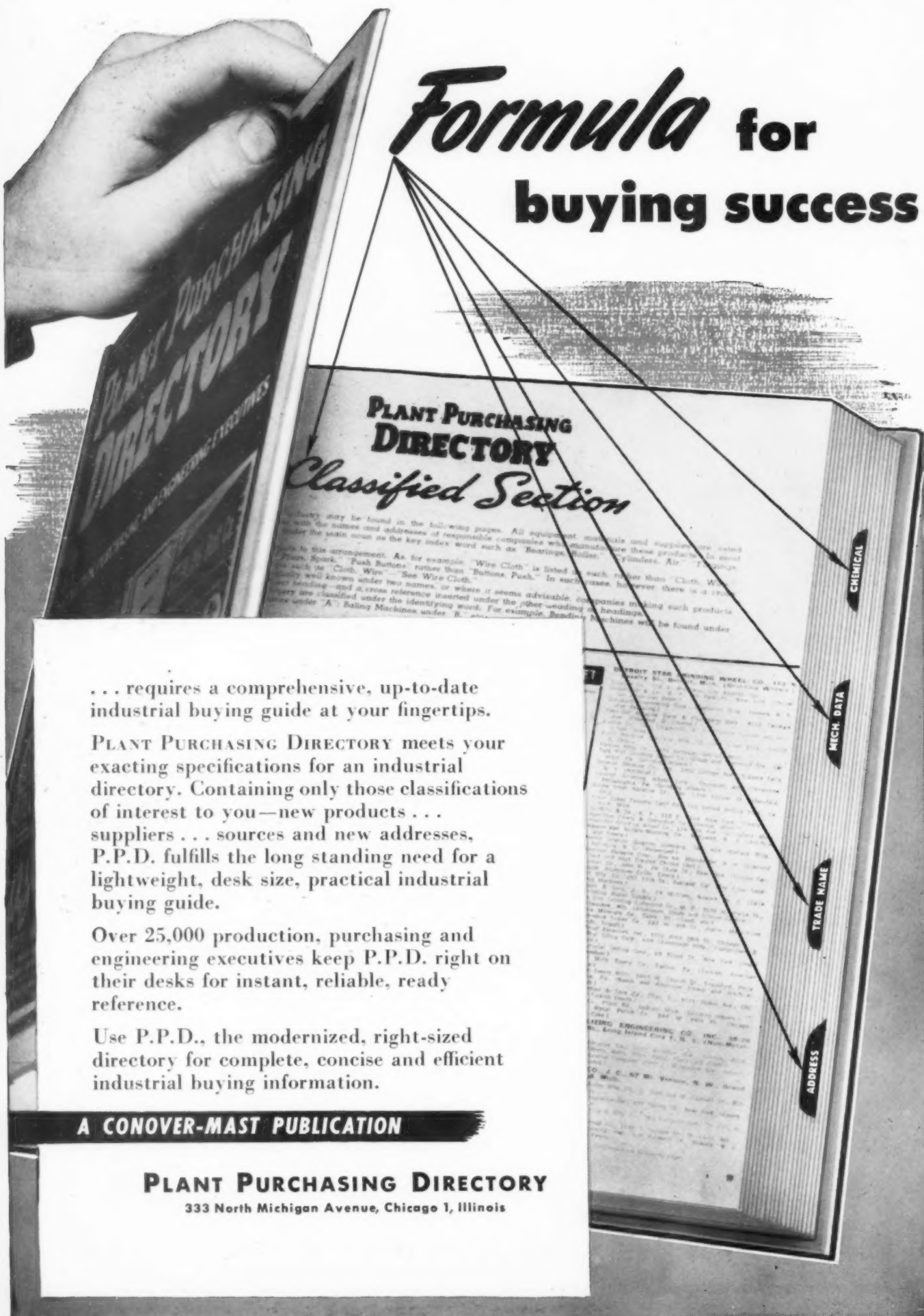
Over 25,000 production, purchasing and engineering executives keep P.P.D. right on their desks for instant, reliable, ready reference.

Use P.P.D., the modernized, right-sized directory for complete, concise and efficient industrial buying information.

A CONOVER-MAST PUBLICATION

PLANT PURCHASING DIRECTORY

333 North Michigan Avenue, Chicago 1, Illinois



Educational Buyers Meet At Omaha

(Continued from page 122)

by that organization. Henry Abbett of Purdue University made the presentation, and it was received by the Business Manager of Boys Town with the assurance that it would help some worthy boy to a better start in life.

The address of the evening was given by the Hon. Robert Crosby, Lieutenant Governor of Nebraska and President of that State's Unicameral Legislature. In a practical and informal talk, Mr. Crosby decried the pessimistic philosophy that has pervaded much recent thought on the course of history and economic developments. He stressed the opportunities for example and world leadership inherent in the American scene, and the responsibility that devolves upon everyone to take part in bringing these opportunities to vital reality.

Maintenance and Building Equipment

The concluding session was devoted to a survey of conditions in the field of construction and building equipment. Claude Hough, Jr., of The Principia, St. Louis, presided and directed the discussion panel. There is still a shortage of many materials, and costs are high, but the consensus was that these difficulties can be overcome and that the urgent needs for expansion can be met on a more permanent basis than has been possible during the past few years. The great need is to watch for adequate quality both in materials and workmanship, and to make thorough investigation of the new products that have been developed in this line so as to take advantage of technical progress without being in the position of committing the institutions to hazardous and uncertain experimentation that they will have to live with for years to come.

Carl M. F. Peterson, Superintendent of Buildings and Power, Massachusetts Institute of Technology, presented a paper on "Constructing and Equipping the New Building in 1947-1948", which was illustrated with sample of several of the more promising new materials. The panel discussion covered three specific phases. Fred G. Rounds of Washington State College spoke on heating and plumbing equipment; G. A. Donaldson of the University of Nebraska on office, classroom and laboratory furniture; and H. W. Loman on machine tools and shop equipment.

(Please turn to page 330)

Specific Tapes FOR Specific Uses

- 61 Solvent resistant masking
- 151 Non-corrosive tough—tapes and electrical
- 201 Heat resistant operations
- 101 Solvent resistant—for paint masking; often re-usable
- 151 Non-corrosive—strong and tough—for binding, holding and electrical uses
- 201 Heat resistant—for baking operations—pulls off clean
- 223 White waterproof—writeable surface, for identification, vapor seal
- 263 Fiberglass—vulcanizable, strong, permanent
- 158 Non-staining—for enameled finishes, appliances, furniture, packaging
- 127 Anti-squeak—strong, thick, abrasion-resistant
- 133 Strong and tough—for tying, binding, holding, protecting
- 214 Black waterproof—weather-proof—excellent vapor seal

Either we have YOUR tape or we'll make it!

Bauer & Black has helped hundreds of industries find the right tape for the right job. If, among the few tapes shown here, you don't find *yours*, write Dept. 9-6 today for free Technical Consultant Service. If necessary and to our mutual advantage, we'll *make* the tape you need.

Products of

BAUER & BLACK

Division of The Kendall Company, 2500 S. Dearborn St., Chicago 16

Industrial Adhesive Tape

—PRESSURE SENSITIVE—

Production Short Cuts to Reduce Costs • Research to Speed and Improve Methods



These 2 men



do the work of 10



with STEVEDORE, Jr.

Two men, one loading and one unloading, assisted by a Stevedore, Jr., will lift and carry more goods than ten men can unaided. Stevedore, Jr. uses strong, untiring machine power to perform this heavy task faster and more economically than the strongest men could.

Stevedore, Jr. is a power driven endless belt conveyor on an adjustable base. Stacks up to 6 feet at any angle. Portable — easily moved around. Plugs in any light socket. Carries up to 200 pounds of distributed load at 65 feet per minute. Used for stacking . . . loading and unloading . . . as a pusher in a gravity conveyor line . . . and for many other purposes.

Our free bulletin will bring you complete details on how Stevedore, Jr. can reduce your lifting and stacking costs. Send for it right now.



OFFICES IN PRINCIPAL CITIES

Manufacturers of
STEEL FORGED CASTERS • TRUCKS • CONVEYORS • POWER BOOSTERS

The Rapids-Standard Co., Inc.

Sales Division—379 Peoples National Bank Bldg., Grand Rapids 2, Michigan

Educational Buyers Meet At Omaha

(Continued from page 329)

The convention adjourned with a luncheon meeting at which resolutions were adopted thanking the various committees and speakers who had contributed to the success of the meeting, and optimism was confidently expressed for another successful Association year ahead.

1 1 1

Plant Appraisals

(Continued from page 116)

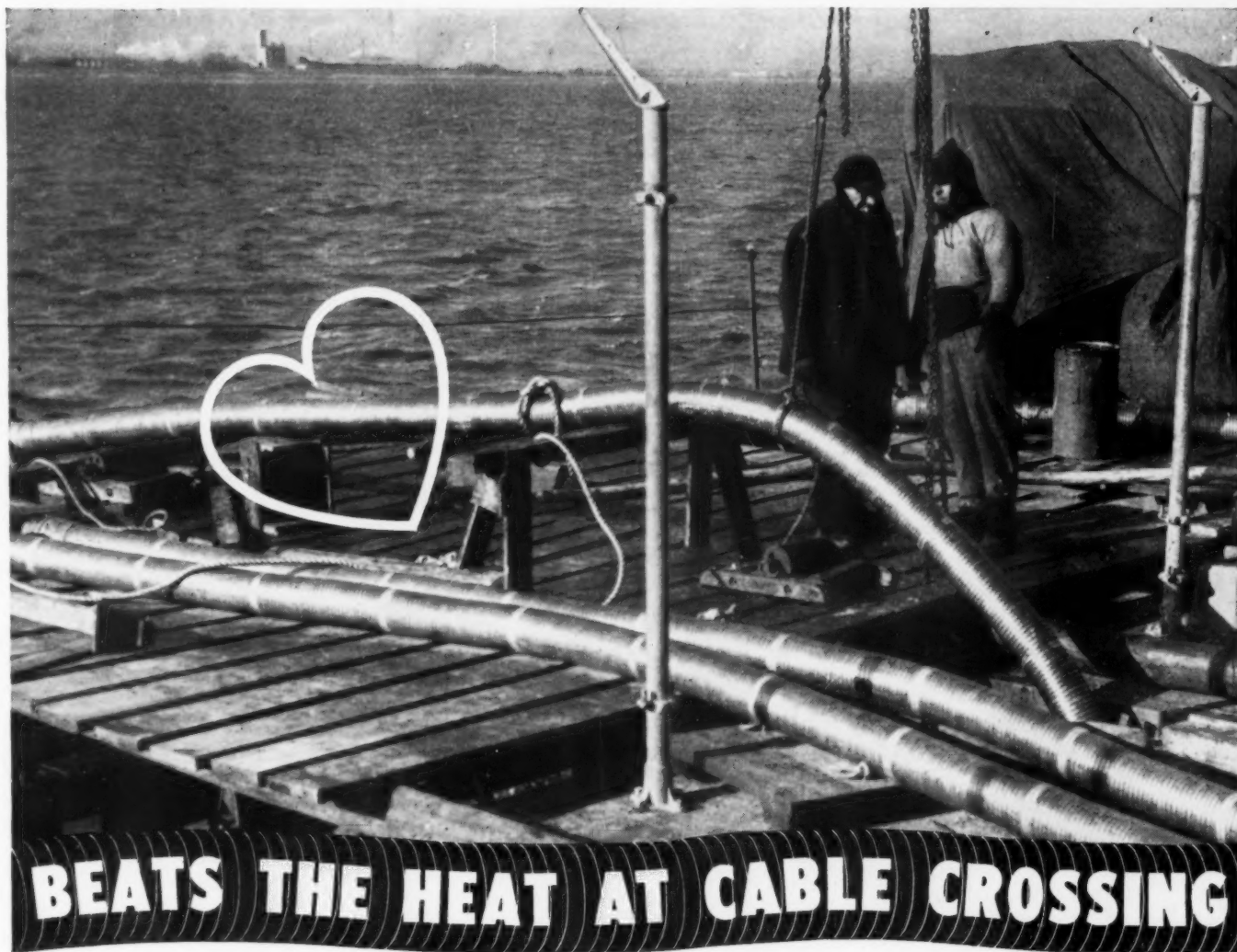
field, one danger of depending on these figures for insurance purposes is that they frequently omit the things which were acquired as gifts and for which there was no actual expenditure of money. It has been my observation that insofar as accounting figures have to do with insurance values, they are prone to charge too much depreciation on buildings and not enough on equipment and other contents.

Have buildings, equipment and other contents established definitely each year—insist on having your analysis brought up to date each year—and purchase insurance accordingly.

"Extended coverage" endorsement gives you protection against loss or damage from: windstorm and hail; explosion (whether or not it occurs within your own premises, but not, however, boiler or flywheel explosion, which coverage is granted under a boiler policy); riot; riot attending a strike; civil commotion; aircraft; vehicles; smoke. In this particular territory (Nebraska), the annual rate for this broad form of coverage is 28c. The use of either the 80% or 90% co-insurance clause reduces this rate to 9.6c on buildings of ordinary construction, and to 1.6c on fireproof buildings. These rates are higher or lower in different states, depending largely on the windstorm and hail hazard.

Your analysis should include the cost of writing insurance for a term of years instead of on an annual basis. On many risks, three year policies may be written for 2½ annual premiums, and five year policies for four annual premiums. I know of no investment which will pay as large and safe an interest return. If you figure your money to be worth 3%, a five year term policy saves you 16.63% of a year's

(Please turn to page 332)



**Penflex "Flexineering" helps solve problem
of cooling power cables at river crossing**

Cooling and protecting eight under-water power cables as they emerge from the water's edge into the shore terminals was a man-sized problem—until Penflex Engineers, teamed with the construction company, furnished the right answer—flexible cooling jackets.

Long sections of 3½" dia. bronze Penflex hose encase each cable from river's edge to the terminal. These were permanently centered in 6" dia. sections of the same length. After sealing both ends of the units, water was circulated through the 6" sections, forming tight, flexible jackets that keep cables cool and protected. Tailor-made by Penflex, these units were easily installed, saving man-hours, cutting costs.

Streamlined for quick service, Penflex "Flexineering" can help solve numerous flexible tubing problems for machine tool manufacturers . . . construction and road building firms . . . oil refineries . . . shipbuilders . . . power plants . . . and other industries.

Backed by 45 years of engineering know-how, Penflex offers complete service on flexible tubing layout design for your specific needs. Call on Penflex for a full line of flexible metallic hose, tubing, and couplings, from ⅛" dia to 30" dia., in all types, for all uses. Also time-saving automatic barrel fillers, rivet passers. For handy bulletins containing complete information, write today to . . .

PENFLEX SALES COMPANY

Division of

PENNSYLVANIA FLEXIBLE METALLIC TUBING COMPANY

7218 Powers Lane

Philadelphia 42, Pa.

BRANCH SALES OFFICES—Boston • New York • Syracuse • Cleveland • Chicago • Houston • Los Angeles • Washington, D. C.



Penflex... HEART OF INDUSTRY'S LIFE LINES

Pick

- ⬠ for Quicker Installation
- ⬠ for Easier Replacement
- ⬠ for Positive Action
- ⬠ for Rugged Construction

No costly puttering when you install a Diamond-H snap switch, convenience outlet or pilot light. A gentle push and the spring mounting gives you a solid installation for top appearance and performance. Yet they can be removed instantly for inspection or replacement. Available in black, white or brown plastic, they require a mounting hole only $21/32''$ x $1-7/32''$ and a depth of $1''$. All three are low in cost, rugged and dependable in service.



Switch equipped with heavy silver contacts. Operating pressure, 3 to 5 oz.; 115 V. 15 A. or 230 V. 10 A.; A. C. only.



Convenience outlet, 125 V. 15 A. or 250 V. 10 A.



Diamond-H neon pilot light, an exact match to the switch and convenience outlet illustrated above.

THE HART MANUFACTURING COMPANY
207 BARTHOLOMEW AVENUE, HARTFORD, CONN.

Plant Appraisals

(Continued from page 330)

premium each year, while a three year term policy saves 15.06% of a year's premium each year.

Perhaps it has occurred to you that a substantial loss early in the policy term would cause you to lose more in unearned premium, exhausted by the loss, than you could have saved by writing term policies. The answer to that is "Unearned Premium Insurance", and the cost is very low.

Properties of the college and institutional type are, in many instances, unusual in construction and involve varied activities which require specially prepared insurance contracts for adequate protection. Your agent or broker should, after careful study, prepare special contracts drawn to fit the individual needs.

1 1 1

Buyers' and Sellers' Markets

(Continued from page 138)

see" buyers' attitude. It would mean uncertainty dangerously bordering on anxiety; a stagnation that freezes initiative; and would reach far down into production and employment with a psychological contagion that could affect our entire economy.

It seems to be pretty generally agreed, that after the first grand spurt of retail price slashings, the replenished inventories must be sanely priced to cover costs and reasonable profit margins. There is fairly unanimous agreement that indiscriminate retail price cutting cannot be continued. The consumer may adopt the "wait-and-see" attitude that will seriously affect us at all levels of our economic life.

It is unnecessary to labor the point that without some semblance of European economic stability, our own national economic health is in constant jeopardy. On the purely mundane side, our dependence on imports of tin, flaxseed, rubber, pulp, and a list of other prime materials, can no longer be minimized in determining our price structures, which are the basis of our entire domestic and foreign economic pattern.

So it may well be that the retail price cutting skirmish has hidden in it a warning or two that commands attention. As a symptom of the

(Please turn to page 334)

Take a tip from

AristoCraft
Power **TOOLS**

E. W. Ristau
PRESIDENT

POWER TOOLS, INC.
ILLINOIS

601 W. WASHINGTON BLVD.
FRANKLIN 3000

THE DUMORE COMPANY
Dumore

FOURTEENTH AND RACINE STREETS • RACINE, WISCONSIN

L. B. A.
INDU

PH. FRANKLIN 3814
W. WASHINGTON BLVD.
CHICAGO, ILL.

Mr. E. W. Ristau (left), Pres., Aristo Power Tools, Inc., and Mr. L. B. Augustine (right), The Dumore Co., showing Mr. H. W. Kyle, P.A., Lion Mfg. Co., the merits of a little precision grinder.

"WE CONCENTRATE ON THE P. A. BECAUSE WE CONCENTRATE ON SELLING", says Mr. Ristau

"TODAY's alert purchasing agent is keenly aware of the need for production time savings and product improvement, both of which spell success or failure in the competitive selling period just ahead. Today he is more anxious than ever to know about products which will effect production savings, and will act right now on those products, as we have found in our daily selling. Working closely with our manufacturer suppliers' local men, we concentrate on product selling to the P. A."

The same practise is just as sound in your *printed* salesmanship—your advertising. Direct it to the P. A. and you'll get a quick response, especially if your product can help to reduce costs.

To get your product story to the P. A. *without fail*, put it in the one magazine he is sure to read—"Purchasing"—his own magazine. For latest data, write PURCHASING, 205 East 42nd Street, New York 17, N. Y., Offices in Chicago, Cleveland, Los Angeles.

PURCHASING

THE NATIONAL MAGAZINE FOR PURCHASING EXECUTIVES



A CONOVER-MAST
PUBLICATION

Surface • Sphericity • Precision

STROM BALLS

Machines used in final lapping operation on medium and large Strom Balls.

It takes a long series of processes, developed and perfected over a period of years, to make a thing as faultless in material and form as a Strom Metal Ball. Worked to a tolerance of fifty millionths of an inch, their outstanding qualities of finish, sphericity and precision have made Strom Balls the standard of industry. Strom Steel Ball Co., 1850 So. 54th Ave., Cicero 50, Illinois.

Strom BALLS  **Serve Industry**

Largest Independent and Exclusive Metal Ball Manufacturer

Announcing

**A New • Revolutionary
Cleaning Machine
for
Engines, Parts,
Metal Products, etc.**

THIS amazing double feature machine is operated by compressed air. It provides (1) a dynamic agitation of the work in the cleaning solution at the rate of 90 to 180 up and down motions per minute—(2) The same mechanism is used to dip the work in the solution and raise it out of the tank at the beginning and end of the cleaning cycle.

WORKING CAPACITY: Up to 400 lbs. at 90 to 180 motions per minute (according to compressor capacity). Platform carrying surface: 41" x 24".



Magnus Cleaners • Methods • Machines

MAGNUS CHEMICAL COMPANY • 93 SOUTH AVE., GARWOOD, N. J.

Service Representatives in Principal Cities

IN CANADA — MAGNUS CHEMICALS, LTD., 4040 RUE MASSON, MONTREAL 36, QUE.



MAGNUS AJA-LIF MACHINE
No Motors • No Gears

Fast . . . thorough . . . highly economical and efficient, the Aja-Lif Cleaning Machine finds its place in all cleaning operations in automotive service shops, railroads, airfields, metal products manufacturing and other fields.

WRITE FOR BULLETIN covering specifications, capacities, working loads and applications.

Buyers' and Sellers' Markets

(Continued from page 332)

buying public's resistance to what consumers feel are excessively high prices it demands prompt correction. If high prices are to be consistently reduced, the necessity for increased productivity must be faced by industry and labor, frankly and honestly. The notion that "buyers" markets and "sellers" markets are necessary evils of our free enterprise system must be dissipated. The idea of the inevitability of a "boom and bust" period must be discounted completely.

The communistic propaganda machine at home and abroad is anxiously watching for any semblance of a break in our American economic system. The slightest sign of weakening in any part of it will give more aid and comfort than most of us really know. The American free enterprise system is not on trial with Americans, but it is on exhibition for others. It can courageously meet any cynical challenge to show and prove that it has worked and will continue to work if we keep it virile. It has fully justified our faith in it. That faith is the indispensable ingredient of its vitality. Purchasing agents have always had a full measure of that faith.

♦ ♦ ♦

Fair Labor Standards Acts

(Continued from page 144)

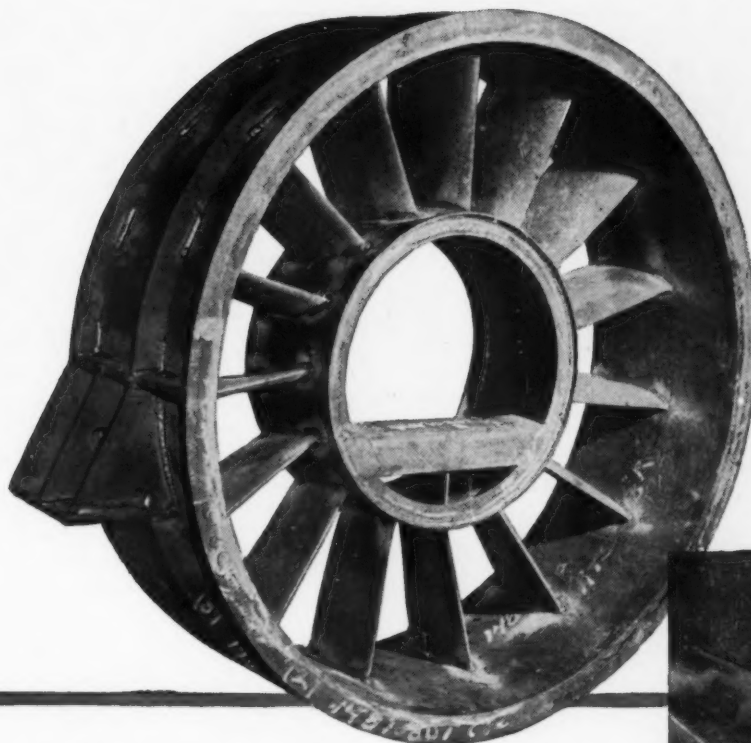
Fair Labor Standards Act. This court said:

"In such circumstances, the rate for the purpose of computing overtime is determined by dividing the weekly salary paid by the actual hours worked in any given week."

Must Produce Records

According to a late higher court decision an employee who sues his employer under the Fair Labor Standards Act for unpaid minimum wages, or unpaid overtime compensation, has the burden of proving that he performed work for which he was not properly and legally compensated.

This court also held that in suits of this nature the employer proves his case by producing as evidence full and complete wage records. Failure to do so will entitle the employee to a favorable verdict. See *Anderson v. Mt. Clemens Pottery Company*, 66 S.Ct. 1187.



Guide vane assembly of Jeffrey Aerodyne mine-ventilating unit. This consists of 15 cast iron vanes welded between inner and outer rings of heavy-gauge steel sheet with 5/32" Ni-Rod electrodes.

Close-up of guide vane assembly. Note smooth appearance of welds. One bead around each corner is all that is needed to bond a vane securely to the steel rings.



How welding cast iron to steel with **NI-ROD** SAVED 300 OPERATIONS PER ASSEMBLY

The Jeffrey Manufacturing Company, of Columbus, Ohio... makers of Aerodyne Fan mine ventilating units... were looking for a faster, simpler method of building their large guide vane sections.

The stumbling block was the fact that the 15 vanes are iron castings. The inner and outer rings between which they are mounted, are steel sheet. Although welding seemed like the obvious answer, cast iron-to-steel joints have usually been a crossed-fingers proposition.

After experimenting with several electrodes, Jeffrey engineers remained convinced that their standard fabrication method was the only way.

Here's what they had to do: Four slots had to be cast into each vane. In the thin sections between each pair of slots, they drilled two rivet holes. Then they had to cut out 60 pieces of strip steel, drill them, and rivet them into the slots.

Add that all up and it amounts to this: 60 holes drilled in the vanes, 60 pieces of steel cut to size, 120 more holes drilled in the steel strips, and 60 rivets to set. That makes 300 time- and labor-consuming jobs on each assembly, not

to speak of a difficult casting job to put the slots in the vanes, and the final step, welding the steel strips to the rims.

And then came NI-ROD* with the solution they were seeking.

Ni-Rod quickly furnishes strong, sound deposits between the iron and steel. The smooth weld beads run all the way around each corner of each vane... and are made without preheating.

* * *

On the basis of this experience, look over your own fabricating operations. Perhaps Ni-Rod can save you time and money in your production lines. You'll also find Ni-Rod great for general maintenance and repair work.

Ni-Rod comes in 3/32", 1/8", 5/32" and 3/16" diameters. Order a 5-lb. package from your nearest NI-ROD distributor. And, be sure to ask for a copy of the Ni-Rod Instruction Booklet.

*Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.



NI-ROD IS DISTRIBUTED BY:

WHITEHEAD METAL PRODUCTS COMPANY, INC.	METAL GOODS CORPORATION
WILLIAMS and COMPANY, INC.	METAL & THERMIT CORPORATION
STEEL SALES CORP.	HOLLUP CORPORATION
PACIFIC METALS COMPANY, LTD.	EAGLE METALS CO.
J. M. TULL METAL & SUPPLY CO.	ROBERT W. BARTRAM
HENDRIE & BOLTHOFF CO.	WILKINSON COMPANY, LTD.
ALLOY METAL SALES, LTD.	NATIONAL CYLINDER GAS COMPANY

ROCKWELL *Hardness*

ALONE is not enough for

MILFORD*

REZISTOR HACK SAW BLADES

It's Laboratory Control of Heat Treatment that Maintains the Fine Cutting Edges.



The structure of the teeth . . . the "business end" of MILFORD blades . . . is controlled during every-day heat treating operations by continuous micro-photographic examination.

Sample heat-treated blades are taken from each furnace, teeth are mounted in plastic molds, and examined at 500 diameters. If the tooth structure is not just right, furnace adjustments are made and further sampling required. Even after the Metallurgical Department gives the "go-ahead," additional samples are examined during the day.

A MILFORD hardened tooth shows the "white area" of a properly hardened structure at the cutting edge, assuring maximum cutting performance. The heavier solid body below is tough for maximum strength.

Just Another Reason Why Milford Rezistor Blades Are the Finest Hack Saw Blades that Money Can Buy!

*Trade Mark Reg. U. S. Pat. Off.

Order from your Mill Supply Distributor. He is always ready to serve your needs for all factory and mill supplies as well as MILFORD hack saw and band saw blades.

MILFORD

PROFILE AND
BAND SAW BLADES
REZISTOR AND DUPLEX
HACK SAW BLADES

THE HENRY G. THOMPSON & SON CO.

Saw Specialists Exclusively for Over 65 Years
NEW HAVEN 5, CONNECTICUT, U. S. A.

Motor Size Reduced One-Third

(Continued from page 107)

ers Association told the 300 or more persons registered for the meeting (representing some 125 companies) that the machine tool builders are getting into a position where they will be able to give shorter delivery. "We have reason to believe that we are nearing the end of the machine tool surplus", he said, "and we hope that by the end of this year that there will be little in the surplus of interest to industry.

Mr. Berna emphasized the need for redesign and improvement of machine tools in a broad program that will make surplus machine tools obsolete. Referring to the machine tool exposition which is to be held in the huge Dodge-Chicago plant in September of this year, he declared that it would be the greatest exclusive machine tool exhibit that the world has ever seen. There will be over 12 acres devoted to the exhibit which will be minus heat treating, welding, floor cleaning equipment and tools of that type.

Mr. Berna stated that 60% of the machine tools in industry at the start of the war were obsolete, and that 45% still are.

The delegates to the meeting were welcomed by J. E. Payne, Industrial Sales Manager, Westinghouse Electric Corporation. Numerous technical papers were presented at the first day's sessions which were held in the Statler Hotel. The following day, the visitors were escorted through the large Buffalo plant, the company's second largest, where they were welcomed by Leon R. Ludwig, manager of the Buffalo division. The main plant is 600 feet wide and 2010 feet long, with partial basement, with 1,860,000 square feet under one roof. Including outside buildings, the plant has a total floor area of 2,238,000 square feet. The machine tools installed in the plant represent an investment of \$5,000,000.

1 1 1

INSECT WIRE SCREENING COMMERCIAL STANDARD

Commercial Standard CS138-47, Insect Wire Screening, is announced by the Division of Trade Standards, National Bureau of Standards, Washington, D. C. Copies are available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 5¢ per copy.



It's **UNIFORMITY** that counts in a **free cutting rod**

Uniformity of dimension, shape and surface smoothness are readily evident in a free cutting rod. Not so obvious, however, but far more important to the manufacturer of screw machine products, are those desirable but unseen characteristics; uniform *composition*, uniform *temper* and uniform *metal structure*. For on these depend the physical properties of the part, the excellence of its machined finish, and the economy of its production through sustained high cutting speeds.

The American Brass Company produces a large number of Anaconda Copper and Copper Alloy Rods in all commercial sizes and shapes suitable for screw machine use. Sixteen are free cutting alloys. The "special purpose" properties of six of these are indicated on the following page.

47113

THE AMERICAN BRASS COMPANY

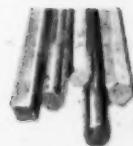
General Offices: Waterbury 88, Connecticut

Subsidiary of Anaconda Copper Mining Company

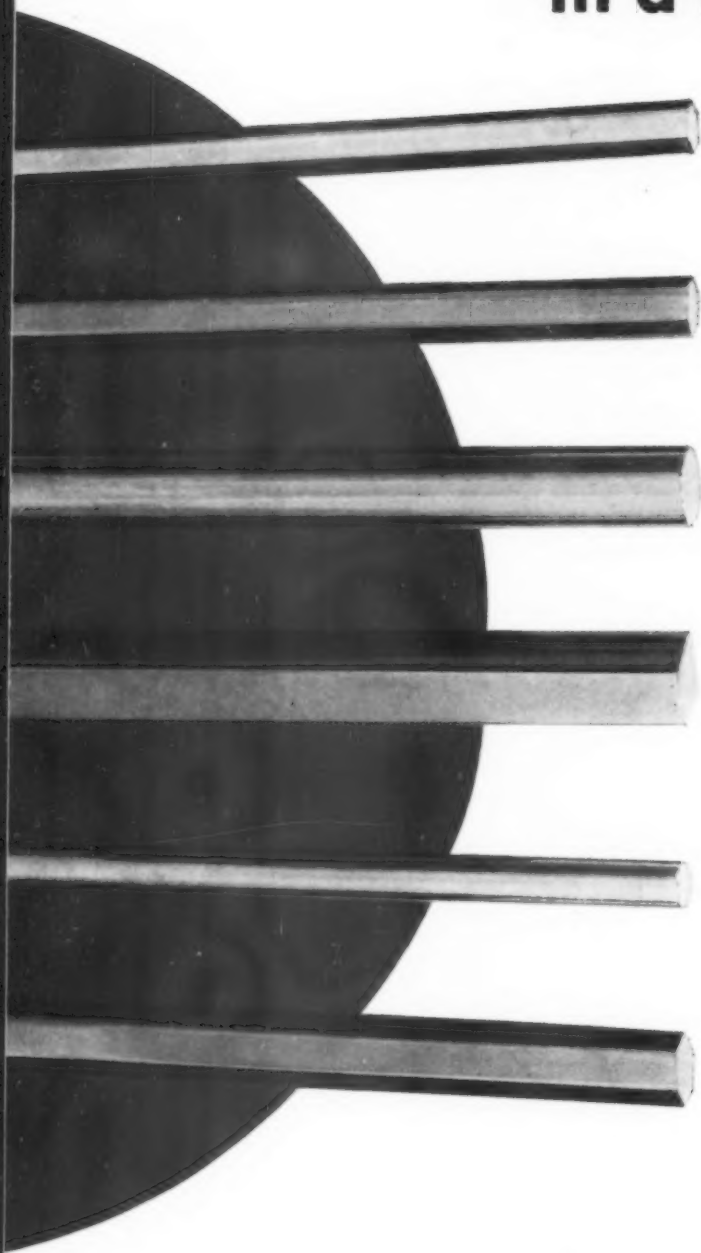
In Canada: Anaconda American Brass Ltd., New Toronto, Ont.



Anaconda **FREE CUTTING RODS**



What do you need most in a **FREE CUTTING ROD**



- **Maximum Machinability?** Free Cutting Yellow Brass 271. The standard all-purpose rod of the screw machine industry; economical, versatile, ranking highest in machinability.
- **High Electrical Conductivity?** Leadless Copper 946. A truly free cutting copper rod having a minimum electrical conductivity of 95% I.A.C.S. in commercial hard temper.
- **Good Bearing Qualities?** Special Free Cutting Phosphor Bronze 610. Combines typical "phosphor bronze" bearing qualities with machinability close to that of yellow brass.
- **High Strength and Toughness?** Everdur* 1012. This rod provides the toughness, high strength and corrosion resistance of copper-silicon alloys with ready machinability. *Reg. U.S. Pat. Off.
- **A Ductile, Silvery White Alloy?** Leadless Nickel Silver 12% 796. Strong, tough and durable, this silvery white alloy is free cutting, yet ductile enough in proper temper to permit cold forming or spinning.
- **High Resistance to Corrosion Cracking?** High Strength Commercial Bronze 286. A relatively new Anaconda Rod combining high strength (70,000 lb. per sq. in. commercially hard drawn, up to 1") with excellent machinability and unusual resistance to corrosion cracking.

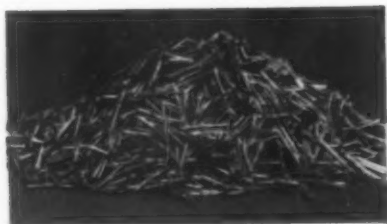
Compositions, physical properties, constants and machinability ratings of all Anaconda Free Cutting Rods are listed in Publication B-14. Practical suggestions for machining copper and copper base alloys are included in Publication B-3. Either one or both will be mailed on request.

THE AMERICAN BRASS COMPANY

General Offices: Waterbury 88, Connecticut

Subsidiary of Anaconda Copper Mining Company

In Canada: Anaconda American Brass Ltd., New Toronto, Ont.



Chips machined without coolant from High Strength Commercial Bronze 286. Depth of cut, .375"; feed, .003". Illustration two-thirds scale.



Anaconda **FREE CUTTING RODS**

If this copy of
PURCHASING
Has Passed Its Youth
by the Time It Reached You
 --- *Try This Sure Cure*

Although printing facilities still groan over the heavy burden placed on them, we manage to get **PURCHASING** in the hands of its readers on time. Of course, we mean in the hands of the man whose name appears on the address stencil.

That is as far as we can go. We wish we could go further, so that those near the middle or bottom of a routed list would receive the valuable information in the purchasing executive's Bible before age had an opportunity to detract even slightly from the wealth of useful facts our edi-

tors and our advertisers provide.

If you are a victim of delayed routing, there is a quick and positive cure: simply see to it that you are the man whose name appears on the address stencil. The cost is slight — 25¢ a copy — \$3 for a full year's service. And then you will not only get your copy while the information is of maximum value to you, but you can also clip the issues to your heart's content and preserve the articles and advertisements you wish to preserve in your permanent, personal files.

Just fill in, clip, and mail the coupon:

PURCHASING

●
 The National Magazine
 of Industrial Procurement

PURCHASING, 205 E. 42nd St., New York 17

To avoid delay, I want **PURCHASING** to come to me personally. Send it to me each month for a year — 25¢ a copy — \$3 for the whole year.

Mr. Title

Company

Address

MORE THAN **70** OAKITE MATERIALS

to help solve all your cleaning problems

... plus the new OAKITE-VAPOR CLEANING UNIT to put those detergents into potent steam-cleaning action for you—that's your best bet for efficient cleaning. Just flick the switch, and in one minute this Unit generates 100 lbs. of good wet steam (lots of reserve power) to simplify your toughest cleaning jobs.

Unit has fuel capacity for 8-hour, non-stop steam cleaning. Designed for one- or two-gun cleaning action. No coil-clogging to slow down your cleaning jobs, because unique mixing method allows cleaning solution to by-pass heater coils. Automatic pressure and temperature controls assure trouble-free operation.

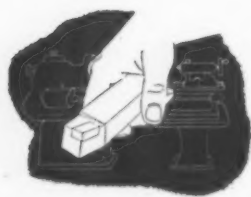
Immediate delivery of stationary and mobile models. For the whole story of efficient, low-cost cleaning with the Oakite-Vapor Cleaning Unit write to Oakite Products, Inc., 54 Thames St., New York 6, N. Y. No obligation.

OAKITE

REG. U. S. PAT. OFF.

SPECIALIZED CLEANING MATERIALS • METHODS • SERVICE

Technical Representatives in Principal Cities of U. S. & Canada



KENNAMETAL

CEMENTED CARBIDE
TOOLS, BLANKS,
and SPECIALTIES

- **FOR FAST, ACCURATE METAL-CUTTING** . . . complete selection of single-point tools and milling cutters.
- **RESIDENT TOOL ENGINEERS** in 24 cities available for expert help in proper selection and correct use.
- **WAREHOUSES** in Chicago, Cincinnati, Los Angeles, New York, and San Francisco to expedite delivery.



KENNAMETAL

SUPERIOR CEMENTED CARBIDES
KENNAMETAL INC., LATROBE, PA.



no matter what the shape!



**MECHANICAL
RUBBER**

PRODUCTS COMPANY
733 E. 150th Street, New York 55, N.Y.

Can Supply Your Rubber Needs

Sponge Rubber, Gaskets,
Packing, Sheet Stock,
Gloves, Extrusions, Moldings

**NEOPRENE • HYCAR • BUNA S.
• BUNA N. • GUM RUBBER •**

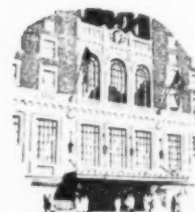
History Is Bunk

(Continued from page 136)

was succeeding him; the unions yapping at his heels; and war, which he hated, looming on the horizon—it is fair to assume he wasn't too happy.

The war came. The tired brain and failing body rallied to serve the country that gave him his chance. The lax fingers once more gripped the controls. He made planes on a scale never before attempted; he made jeeps and trucks and amphibians and anything else a first-class machine shop could make for war. When somebody asked Knudson about a report that Ford had said he could make a thousand planes a day of a given model if he were let alone, Knudson replied: "He can, if he says he can."

*"The moving finger writes; and
having writ,
Moves on; nor all your piety nor
wit
Shall lure it back to cancel half a
line,
Nor all your tears wash out a word
of it."*



The
LORD BALTIMORE
of BALTIMORE Street
*an address favorably known
to millions*

Just a step from where you want to go—from the shopping, business, financial or theater districts. 700 rooms—each with tub-shower combination and radio—comfortably appointed, immaculately maintained—and Maryland cuisine to delight the epicure. Garage facilities.

**LORD BALTIMORE
HOTEL**

*H. Nelson Busick,
Managing Director*

BALTIMORE AND HANOVER STS.,
BALTIMORE 3, MD.





NEW TYPE WORK GLOVE

Guaranteed

TO OUTWEAR ANY CANVAS GLOVE

Absolutely guaranteed to outwear any canvas work glove, Riegel's "Super Canton" cuts production costs, increases working comfort. Rigid tests under practical and difficult conditions prove it to be a rough, tough glove able to withstand exceptional wear and tear. But for all its toughness, this new type work glove is soft and flexible . . . with a non-slip surface that provides a safe, sure grip. It has a knit wrist and wing thumb. Riegel's "Super Canton" is low in first cost . . . still lower when costs are based on length of life.

Riegel

WAGON BRAND WORK GLOVES

SEND ME laboratory tests, photographs and full information on Riegel's Super Canton Work Glove.

Also send free sample pair. ☐

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

RIEGEL TEXTILE CORP. • 342 MADISON AVE., NEW YORK 17, N. Y.

Leather Packings

*specially tanned
and treated
for*

*Severe
Service*



GARLOCK *Bitan* packings are made from carefully selected raw leather, specially tanned and treated by an exclusive Garlock process. This gives *Bitan* packings high tensile strength to withstand the heaviest pressures and also makes them resistant to temperature, acid or alkaline solutions.

In filling each order, the leather is properly tanned and treated for the particular service for which the finished product is to be used. All types or forms including: Molded Cups, "U" and "V" Packings, Flange or Hat Packings, Washers, Discs and Gaskets. All sizes. Write for descriptive folder.



THE GARLOCK PACKING COMPANY
PALMYRA, N. Y.

In Canada: The Garlock Packing Company
of Canada Limited, Montreal, Que.

60th Anniversary 1887—1947

GARLOCK

Bitan

LEATHER
PACKINGS

Spring Troubles?

...want Dependable, Complete
UNUSUAL SPRING SERVICE?

At LEWIS you will find . . .

- . . . spring engineering assistance
- . . . precision manufacturing
- . . . low ultimate cost
- . . . prompt delivery

Yours for the Asking

Just send us specifications and let us quote on your spring or wireform job . . . or tell us your spring problem and we will help you with our specialized experience to assure you of getting the RIGHT springs at the lowest cost with highest quality for your products.

LEWIS SPRING & MANUFACTURING COMPANY

2648 West North Avenue, Chicago 47

Ask to see a Lewis Representative for Prompt, Unusual Service

Lewis

PRECISION
SPRINGS

THE FINEST LIGHT SPRINGS AND WIREFORMS
OF EVERY TYPE AND MATERIAL

METAL CANS OF YESTERYEAR

A dramatic advance in metal container styles has been displayed in the Warshaw Collection of Business Americana, reports the Can Manufacturers Institute. Tighter closures, high speed production, improved lithographic design, and more convenient shapes and sizes have streamlined the tin can of yesterday. These improvements become clearly evident when you compare modern cans with the antique containers assembled by the business historian, I. Warshaw, at 752 West End Avenue, in New York.

Warshaw has brushed the dust of history off 500,000 commercial relics—pamphlets, posters, labels, broadsides, advertisements, catalogues, trade cards, invoices, and other valuable miscellany. At 752 West End Avenue in New York, these relics are available to industrialists building company museums and displays, or illustrating pamphlets and brochures. Among the collection is a pageant of early fashions in tin plate packaging that hark back to the era of bustles, lace ruffles, and beyond.



Business Historian Warshaw exhibits cans in his collection of Business Americana

Warshaw exhibits metal cans that document the growing pains of an industry that has since magnified its production to 24,000,000,000 steel-and-tin containers per year. One phase of can industry progress is the development of closures that protect against atmosphere. Coffee cans, for example, have advanced from the old dome-lidded models to the key-opening vacuum can that preserves plantation freshness. Can decoration, moreover, has improved due to new lithographic and design techniques. Modern cans flaunt more persuasive eye-appeal.

A century ago, a can of food cost about \$1.00. High speed production methods have since lowered the price to a minor fraction of an average worker's hourly wage. Container design, like architectural design, has streamlined down to simple functional shapes since the good old days. Cans are easier to pack and stack. Simple standardized designs have lowered the average cost of a can itself—now something less than 2¢.



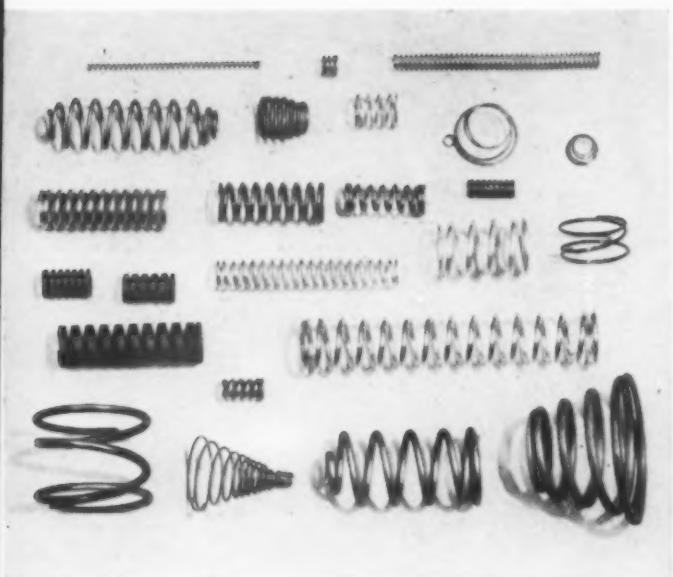
Not Sonny's Ears Perhaps

...but Turco cleans 'most everything else. The perfect solution for *every* cleaning problem that arises in *every* industry, business or institution is found in a *specialized* Turco Compound and Process. If *you* have a cleaning problem, remember that there's a skilled Turco Field Engineer as close as your phone. Call him today.

**The scientific application of all the factors in cleaning to a specific problem.*



TURCO PRODUCTS, INC. Main Office & Factory: 6125 S. Central Ave., Los Angeles 1
Offices & Factories: 125 W. 48th St., Chicago 9 • 1606 Henderson St., Houston 1, Texas
New York Office: 21 West Street, New York 6 • Offices & Warehouses in All Principal Cities
Canada: B. W. Doane & Company Limited, 751 Victoria Square, Montreal 1



for
Top-Grade SPRINGS
- You can Rely on
RELIABLE!

Do you instruct your spring maker to use the utmost economy in producing your springs—so long as they pass your inspection? If so, you may be headed for trouble.

It is actually impossible for any spring user's inspection department, no matter how efficient, to prevent springs which have been "short-cut" in manufacturing from getting by. It is quite easy for any spring producer, especially if squeezed on price, to adopt those dangerous short-cuts which reduce costs without showing up in inspection, but which definitely affect the life and performance of the product in which the spring is used.

Therefore your best protection, as a spring user, still lies in the integrity of your spring maker for quality standards. Reliable will not be tempted to skimp or cut corners—we have too much at stake in reputation and good customer relations. You can rely on Reliable.

Additional 4-slide and other equipment now give us greater capacity than ever, and our inventories of most needed spring materials are good right now.



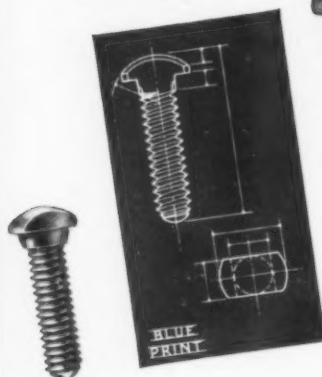
Reliable has not increased prices by reason of present higher metal costs. Send us your specifications. Catalog on request.

THE RELIABLE SPRING & WIRE FORMS CO.
3167 Fulton Rd. Cleveland 9, Ohio

Representatives in Principal Cities

YOU CAN RELY ON
Reliable Springs
ROUND AND FLAT WIRE SPRINGS CLIPS HOOKS BENDS LIGHT STAMPINGS

**ANOTHER
SPECIAL BY
PROGRESSIVE**



ACTUAL
SIZE



ENLARGED FOR DETAIL

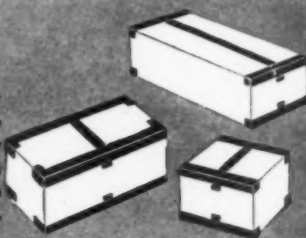
CATALOG SHOWS DOZENS MORE

Special heads, threads and finishes on any metal or alloy adapted to cold upset. Weekly output: 25,000,000 pieces. Many specials, suggesting production savings for you, illustrated in latest catalog. Includes weights per 1M standard pieces, dec. equivs. of fractions, other purchasing and engineering helps. Write for Catalog 18.

The PROGRESSIVE MFG. CO.
42 NORWOOD ST. TORRINGTON, CONN.

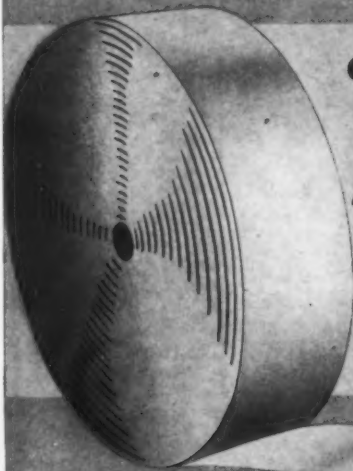
*America's Most
Popular Brand*

All over America shippers know Orange Core sealing tape. They like its speedier, stickier, sturdier quality—the way it steps up production and protects shipments. Orange Core will do a better job for you.



ORANGE CORE

*Moistens Fast
Grips Fast
Holds Fast*



ORANGE CORE
Sealing Tape

MOORE & THOMPSON, Div. Hudson Pulp & Paper Corp., 220 E. 42nd St., New York 17, N.Y.

UNITED STATES RUBBER COMPANY

SERVING THROUGH SCIENCE



U. S. SKIPPER SUIT

- Heavy drill, double-coated rubber
- Can be worn over heavy clothing
- 100% waterproof



U. S. WORK APRON

- Heavy drill, double-coated rubber



U. S. SAVOY COAT

- Double-backed for extra service
- 11 ventilating outlets, heavy lining, corduroy-edged collar



U. S. BOOTS

- Leak-tested under water. Snug at heel and over ankle. Non-skid "Cleatred" sole. Shingled construction.

U. S. RUBBER ARCTICS

- 4 or 5-buckle styles. Leak-proof construction, buckles firmly anchored



You'll keep DRY with U.S.

Never before have we offered protective work clothing with such superlative comfort, feel and wear; engineered by U. S. scientific compounding and bonding of rubber-to-fabric—results of many years of experience as the largest maker of rubber work clothing.

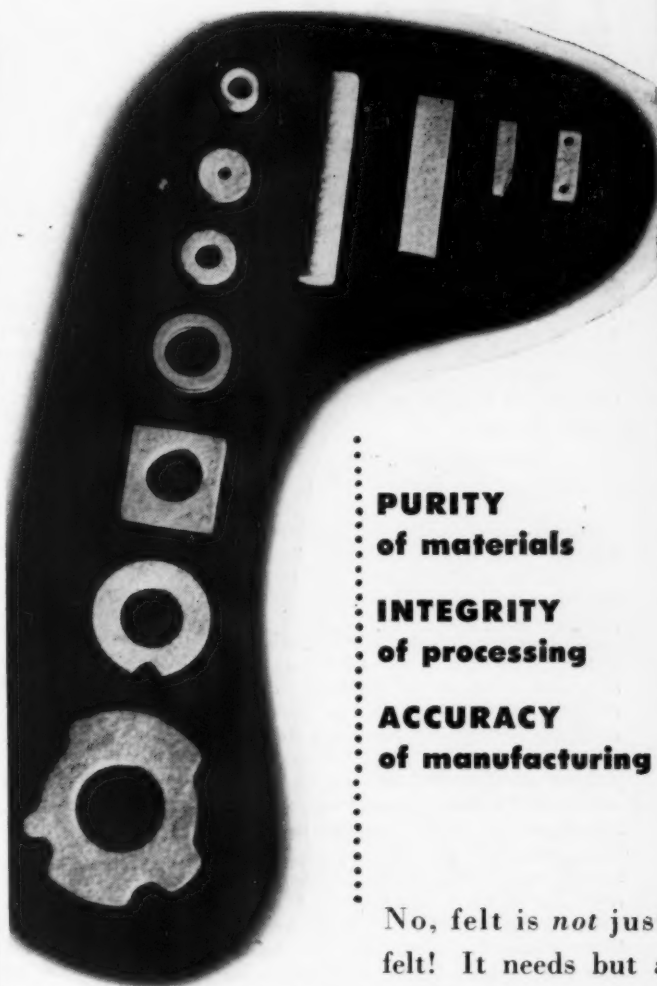
Sold only through Industrial and Retail Stores

MAKERS OF

U. S. ROYAL
RUBBER FOOTWEAR



U. S. INDUSTRIAL
RAYNISTERS



PURITY
of materials

INTEGRITY
of processing

ACCURACY
of manufacturing

No, felt is *not* just felt! It needs but a

glance at this assembly of pure white Western Felt die cut parts to realize their superlative quality. Produced from the highest quality wools and cut to close limits, no wonder Western Felt is depended upon by manufacturers of quality products in dozens of industries. Western Felts are available in any form for literally thousands of applications: wicking oil, water and other liquids, heat age, cushioning shock, deadening sound, filtering, insulating. In more than forty-

eight years, Western Felt technicians have acquired the "know how" to render prompt and effective cooperation.

Acadia Synthetic Products Division processes Acadia Synthetic Rubber and Plastics in sheets, extrusions and molded parts.

WESTERN FELT WORKS

4035-4117 Ogden Ave., Chicago 23, Illinois

Branches in all Principal Cities

Largest Independent Manufacturers and Cutters of wool, hair and jute felts



LETTERS . . .

MARCH ARTICLE BREAKS READER-RATING RECORD

"Efficiency or Proficiency in Purchasing," page 97 of your March issue, should go to all executives, and page 104 ("Even Engineers Could Do Better") should go to all chief engineers. It might influence some of them to give the purchasing agent a break."

S. W.
Birmingham, Ala.

We have reprints of "Efficiency or Proficiency in Purchasing," and will be glad to supply a few copies on request to readers who wish to place them in strategic spots.

Every so often we select a representative "board of judges," among PURCHASING readers, to read the contents of a given issue according to degree of interest. The "board" that judged the March issue gave the blue ribbon to "Efficiency or Proficiency in Purchasing," with a reader rating of 98.7 per cent, an all-time high. Runner-up was "Work Simplification in the Purchasing Department" (page 109), with a rating of 92.6 per cent. The editorial, "Exit the Escalator," was third, and the "Free Informative Literature" section (see pages 14-20 of this issue) was fourth. Tail-end in the interest scale was "Industrial Purchasing Pattern for Army-Navy Buying," page 114.—Ed.

CENTRALIZED PURCHASING

How many manufacturing companies have centralized purchasing departments?

R. C. Colton, Purchasing Dept.,
Western Electric Co., New York

Most manufacturing companies whose sales total \$1,000,000 or more annually have a centralized purchasing department. The last Census of Manufactures, that for the year 1939, reported 9,574 manufacturing establishments (not manufacturing companies) producing goods to the value of \$1,000,000 a year. The number of plants in this class has increased substantially since 1939. Many of these are branch plants, for which purchasing is done at central headquarters. We estimate there are between nine and ten thousand central manufacturing purchasing departments.

Some manufacturing companies with annual sales below the million dollar mark have centralized purchasing departments, and many relatively small companies concentrate purchasing authority in a single executive, who has other responsibilities and may not therefore bear the title of purchasing agent.—Ed.

DAMAGES INVOLVED IN CANCELLATIONS

For some time I have followed your articles on the legal points involved in purchasing, with great interest.

I seem to remember an article dealing with a purchaser's liability in case of cancellation by him of an order, with particular reference to the extent of damage which can be claimed by the supplier due to loss of profit on that portion of the order which has not been put into process at time of cancellation. There was the further supposition that there was no specific agreement concerning profits.

We have been having some interesting discussions with our company attorneys, and I promised to try and locate copies of the pertinent material which I am quite sure appeared in your magazine. Any assistance you can give me in the matter will be appreciated.

L. A.
Chicago, Illinois

The reference covering this point appears in our April, 1947 issue, in the report of a question and answer session at the recent Midwinter Conference of the Public Utility Buyers' Group of N.A.P.A. At that meeting, the question was asked:

"Seller's acknowledgment of an order includes the statement that 'Orders are not subject to cancellation.' Before production is started, or during construction, buyer finds it necessary for good cause to cancel the order, but seller refuses to accept the cancellation. To what extent is the buyer protected if he notifies seller of his intention to breach the contract?"

In answering this question, Secretary George Renard of N.A.P.A. cited an opinion given by Dr. Updegraff, the Association's legal consultant, as follows:

"In general, the courts assume that when a contract is entered into, both parties expect to go through with it. Specific performance, however, is not compelled. If the buyer cannot go through with it, the seller may ask and recover damages for the portion of the contract he has completed up to the time of notification, including expenses and work applied to the contract and a percentage of contemplated profit. But he is not justified in putting any more work into the contract after notification of cancellation by the buyer, and he cannot claim any damages beyond that point."

This follows the accepted legal principle that the measure of recoverable damages in the event of a breach of contract by either party is limited by the actual loss incurred and proved by the other party. It does not apply to orders for standard lines of merchan-

dise where no cost of materials or labor has been specifically applied to the account of the buyer. Also, in the case of contracts containing a specific clause outlining terms of settlement (such as the standard Termination Clause included in the majority of war contracts) the terms of the specific clause supersede the general statement of principle.—Ed.

"BASIC PRINCIPLES"

"Basic Principles of Purchasing" has been recommended to us as an outstanding publication in the field of purchasing, and we should appreciate two copies.

We shall be pleased to forward our check if there is a fee involved.

A. M. McKelligon, General Purchasing Agent
Matson Navigation Company
San Francisco, Calif.

Price is \$1 a copy.—Ed.

ALMOST . . .

I like very much the progress that PURCHASING is making toward becoming a more usable "tool" to the Purchasing Agent than it has ever been. It is almost indispensable.

H. B. Ward, Purchasing Agent
Mundet Cork Corporation
Brooklyn, N. Y.

FREE LITERATURE

You comment on our request for all the catalogs, bulletins, etc., listed in the "Free Informative Literature" section of a recent issue of PURCHASING, and ask if we really need all.

We appreciate the wide range covered by the entire 76 items. However, our operations do cover fabrication of many types of items for industry in general and we believe our library will be kept up-to-date in many fields in which we are involved by receiving these descriptive data. In addition the information will assist us in further developments along our fabrication lines.

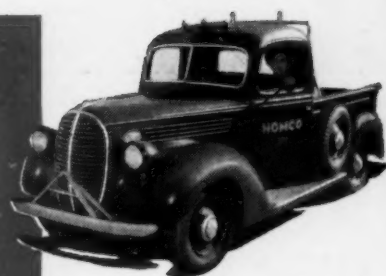
If no inconvenience, please furnish a complete set to our Shop No. 1 at 202-204 Buskwick Ave. and an additional set to me.

F. Messina, General Purchasing Agent
The Enterprise Metal Co., 57 Graham Ave.,
Brooklyn 6, N. Y.

Helping readers keep their catalog files current by acting as intermediary in obtaining latest manuals, catalogs, charts, and bulletins, is an important and well-utilized part of PURCHASING'S service to its subscribers. See pages 14-20 of this issue. When, however, all items are checked, it is our practice to inquire whether or not the wide variety of material is actually needed. Mr. Messina has convinced us that he can make good use of all. Therefore, his request has been passed on in full.—Ed.

"Certainly FORD TRUCKS LAST LONGER!"

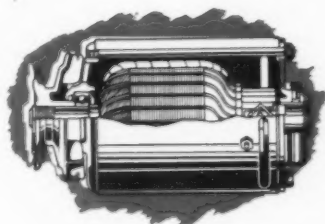
"That's why we operate 207 of them!"—says C. R. Littlepage, Supt. of Transportation, Houston Oil Field Material Co., Houston, Texas.



Two 1939 Ford Trucks owned by HOMCO that prove the point: (Above) Driver Joe Zachary and Pickup, mileage 207,316; (Below) Driver H. O. Carpenter and Pickup, mileage 228,398. Supt. Littlepage adds: "Our Ford Trucks deliver trouble-free miles at minimum cost!"



One BIG Reason— FORD ELECTRICAL UNITS STAND UP!



The fame of Ford Trucks for swift, sure starting and all-weather reliability rests solidly on Ford design and Ford quality . . . in particular, the Ford Electrical System. More than 12 million Ford-designed starter motors and generators have been built in Ford shops. Repeated tests for electrical efficiency consistently prove these fine, Ford-built units to be outstanding. Long, trouble-free generator service is assured by such long-life features as pre-lubricated, sealed ball bearings on armature shafts, and by bushings wick-lubricated from a reservoir with an overflow drain, which prevents surplus oil from reaching commutator. Ford starter motors are pre-lubricated, requiring no oiling whatever. Ford wiring and generous battery and generator capacity adhere strictly to the highest standards of the industry. The simplicity and high efficiency of the Ford starting system circuit, too, have much to do with Ford's faithful starting performance.

Ford

THE 6
YOUR PICK OF POWER
THE V8

Special body and chassis equipment in widest variety is available for the popular Ford heavy duty chassis through Ford Dealers everywhere. Illustrated is a saver of back-muscles and time—the "Lift-Gate," a hydraulically-operated loading and unloading device for heavy merchandise, manufactured by Anthony Co., Streator, Ill., applied to Ford heavy duty chassis equipped with 2-unit van body by Boyertown Auto Body Works, Inc., Boyertown, Pa.



For swift, curb-level loading without obstructing traffic or straining muscles. When truck is loaded, "Lift-Gate" swings up like an ordinary tailgate.



Only Ford Brings You All These Long-Life Features: Your choice of engines, V-8 or SIX—each with new Flightlight oil-saving 4-ring pistons and precision bearings • true truck frames in all models, with siderails doubled in heavy duty units • rear axle shafts free of weight-load, $\frac{3}{4}$ -

floating in half-ton units, full-floating in all others • big, easy-action brakes with non-warping, score-resistant cast drum surfaces—in all, more than fifty such endurance engineering features! And more than 100 body-chassis combinations to choose from. See your Ford Dealer now!

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE!

CLASSIFIED SECTION

NePSCO

**NEW ENGLAND
PRESSED STEEL COMPANY**

Contract Manufacturers since 1914

**METAL STAMPINGS
SPECIALTIES — APPLIANCES**
For Industrial and Domestic Users

P. O. BOX 29
NATICK, MASSACHUSETTS

FOR SALE

**FLANGE QUALITY
OHHR STEEL CORNERS**

3/16" and 1/4" thick
of sufficient size to blank
on 8" to 10" circle.

**THE COMMERCIAL SHEARING &
STAMPING CO.**

P. O. Box 719 Youngstown 1, Ohio

1 — New Wilson-Snyder Horizontal Duplex
Pump, 125 GPM at Maximum 500± PSI
Pressure. With New 50 H.P., 3 Phase, 60
Cycle, 220/440 Volt, 1770 RPM Motor.

FRANK B. FOSTER

2217 OLIVER BUILDING, PITTSBURGH 22, PA.

WANTED

**SUB-CONTRACT
and GENERAL
FABRICATION
WORK**

Our shop is completely
equipped with heavy shears,
brakes, punches, and other
fabricating equipment set-up
to handle practically any type
of building fabrication or pro-
duction work.

We have

a complete stock of structurals and
bar size shapes and plates.

GLAZER STEEL CORPORATION

Tel. 4-8601

Knoxville, Tenn.

CONTRACT WORK

OPEN TIME available on special screw ma-
chines up to 3/8 capacity. Form, drill and
cut-off work in brass preferred. Extremely at-
tractive rates on long run work. Box 1120,
PURCHASING, 205 E. 42 St., N.Y. 17.

FOR SALE

MACHINE SCREWS—270,000 1.2MM x 3MM x
.025 Pitch Fill. Hd. M/S; 100,000 0/80 x 1/8
Hex. Hd. M/S; 2,000 10/24 x 5/8 Stainless
Steel Socket Cap Screws. Box 1119, PURCHAS-
ING, 205 E. 42 St., N.Y. 17.

FOR SALE

NEW CUPRO-NICKEL TUBES
100,000 lbs. 1/2" O.D. x 18 ga. Wall.
70% Copper — 30% Nickel.
80 3/4"
Soft — Can Be Flared or Coiled.
Suitable for Refrigeration and Oil Work.
FIN-TUBE RADIATOR CO., Inc.
New Haven, Ct. Telephone 8-2034

FOR SALE

Used

**HEAVY DUTY GRAVITY
ROLLER CONVEYOR**

2842' 23" wide, 1 7/8" dia., 4" centers
1340' 23" wide, 2 1/2" dia., 4" centers
350' 20" wide, 2 1/2" dia., 8" centers

Guaranteed Excellent Condition

**THE KULKA STEEL &
EQUIPMENT COMPANY**
ALLIANCE, OHIO

FOR SALE

480—14" x 1/4" x 1" Manhattan Rubber
Grinding Wheels—20&BF 206BM..\$2.60 each
450—14" x 3/8" x 1" Manhattan Rubber
Grinding Wheels—46GF106..... 3.38 each
51—14" x 1/4" x 5/8" Manhattan Rub-
ber Grinding Wheels—46GF106... 2.60 each
56—14" x 3/8" x 5/8" Manhattan Rub-
ber Grinding Wheels—46GF106... 3.38 each
100—6" x 1/2" x 5/8" Abrasive Company
Rubber Grinding Wheels—24Q BH6 1.02 each

*All above prices f.o.b., East St. Louis, Ill.:
5% discount for entire quantity.*

Sterling Steel Casting Co.
EAST ST. LOUIS, ILL.

EXCESS CAPACITY AVAILABLE
100-TON DOUBLE ACTION DEEP
DRAWING PRESSES

Dies manufactured to meet requirements

SMITH'S HEATING, INC.
KINSTON, N. C.

POSITIONS WANTED

PURCHASING AGENT, ASS'T P.A. or BUYER
with small or large manufacturer. Education:
4 yrs. major in Business Administration and
1 yr. Purchasing. Experience: 9 yrs. purchas-
ing for manufacturing, resale, and research.
Single, age 31, and in excellent health. **Locate**
anywhere. Available immediately. Box 1117,
PURCHASING, 205 E. 42 St., N.Y. 17.

ASSISTANT TO P.A.—Age 27, 8 years experi-
ence procurement field. Excellent knowledge
factory, office and maintenance supplies. Ca-
pable efficient handling of delivery, follow-up
and commitment reports and correspondence.
Presently employed nationally known organi-
zation. New York, New Jersey area. Resume
upon request. Box 1118, PURCHASING, 205
E. 42 St., N.Y. 17.

YOUNG EXECUTIVE qualified by 16 years
work with outstanding manufacturers in ad-
ministration, production, purchasing, supervi-
sion, and time-study. Good general knowledge
manufacturing processes, machinery, materials,
and tools. Some merchandising, sales and
traveling experience. Correspondence condu-
cive to permanent improved opportunity in-
vited. Age 37. Box 1121, PURCHASING, 205
E. 42 St., N.Y. 17.

FOR SALE STEEL

425 No. 14 ga. Galv. Corrug. Sheets
25 5/8" x 83 1/2"
4170 HR Flat Bars 2 3/4" x 1/2" — 8' 1"
1970 " 4 3/4" x 7/16" — 10'
658 Galv. Flat Bars 3 1/2" x 1/4" — 20'

WELDING RODS

\$.04 per lb. f.o.b. Milwaukee
315 50-lb. boxes — 3/16 Airco No. 81
25 " — 5/32 Page H Electrodes
Viking Manufacturing Co.
1905 So. 1st St. Milwaukee 1, Wis.
Mitchell 4730

FOR SALE

**FREIGHT CARS
CAR REPAIR PARTS
RELAYING RAILS
STEEL STORAGE TANKS**

THE PURDY COMPANY

122 So. Michigan Avenue
Chicago 3, Illinois

SCREW MACHINE PRODUCTS

TO B-P OR SAMPLE

CAP NUTS to G.M. SPEC.

MID-WEST SCREW PRODUCTS CO.
3661 Park Ave. St. Louis 10, Mo.



CLASSIFIED SECTION

FOR SALE

Ferracute SG-53 Press, 65-Ton, 1944 Model. Straight sided, double crank, 5" stroke, 11 1/4" shut height bolster to ram, 18" x 39" ram plate, 24" x 44" bolster area, no bed opening. Excellent Condition.

WEBSTER INDUSTRIES, INC.
38 Commercial St., Webster, N. Y.

FOR SALE

LOCOMOTIVES—8 Ton, Standard Gauge, Plymouth, Gasoline. Further information on request.

KARL NUSSBAUM
LOUISVILLE 11, KENTUCKY

HAVE YOU A SMALL TUBE PROBLEM?

Specialists in Fabricated Tubes to 3/4" O.D. In any Metal, Bent, with or without Fittings for Hydraulic or Mechanical applications. Any quantity. Prompt quotation.

FRANKLIN PRODUCTS CO., INC.
Franklin 1, Michigan

Having discontinued the manufacture of braided hose, we have the following items

FOR SALE

1—CBI-36B Single Deck Horizontal Braider, including one set of extra parts, less carrier, 6 1/2" horn gear. Manufactured by New England Butt Co. Price...\$878.00

1—CBI-24B Single Deck Horizontal Braider, less carrier, 6 1/2" horn gear. Manufactured by New England Butt Co. Price...\$540.00

1—24 Strand #1 Cable Horizontal Braider, 6 1/2" horn gear. Manufactured by New England Butt Co. Price...\$570.00

1—36 Strand #1 Cable Horizontal Braider, 6 1/2" horn gear. Manufactured by New England Butt Co. Price...\$740.00

736 lbs. Cotton Yarn 8-3-5, 3 1/2" Traverse, 2" dia.

1271 lbs. Cotton Yarn 8-3-3, 4" Traverse, 2" dia.

4617 lbs. Cotton Yarn 8-3-3, 6" Traverse, 3 1/8" dia.

Price...\$51 per lb.

All prices f.o.b. New Brunswick, N. J.

RODIC RUBBER CORPORATION
Allen Avenue New Brunswick, N. J.
Telephone: 2-1011

FOR SALE

One slightly used; Model #750; Philips Ray-Protected; Self Contained; Industrial Radiographic Fluoroscopic Unit of 150 KVP — MA Capacity.

THE UNITED STATES TIME CORP.
Waterbury 91, Conn.

PUNCH PRESSES — CONVEYORS

#88 Cleveland, 255-ton, SS, 24" stroke, tie-rod, motorized.

#89 Bliss, 345-ton, SS, 12" stroke, motorized.

#401 Bliss, 150-ton, SS, 8" stroke, tie-rod motorized.

12" Gravity Roller Conveyors, 10 ft. sections — \$1.50 per ft., Steel Trestles — \$1.50 ea., 2" ballbearing roller spaced on 4" centers.

THE ELYRIA BELTING & MACHINERY CO.
ELYRIA, OHIO

SUBJECT TO PRIOR SALE

SUBSTITUTES FOR STEEL

29,000# .040 x 48 x 144 24SO CLAD

33,400# .051 x 48 x 144 24SO CLAD

18,500# .051 x 48 x 144 24ST CLAD

146,000# .040 x 36 x 72 3S 1/2H

50,000# .030 x 10 1/4 x Coil 3S 1/2H

25,000# .030 x 8" x Coil 3S 1/2H

100,000# .030 x 6" x Coil 3S 1/2H

90,000# .032 x 10 3/8 x Coil 3S 1/2H

Make Your Purchasing Job Easy

Call us on all your Requirements

DO IT NOW!!!

ATLANTIC BRASS & COPPER CO., INC.

136 Lafayette St., New York 13, N. Y.

WOrh 4-7013

FOR SALE

SENSITIVE DRILL PRESSES

6—Leland Gifford #1—12" Bench Type

20" wide 24" deep 46" high

3/4 H.P. 220 V. 60 Cyc. 3 phase motor

G-E Starter with push button control at 4

speeds 1725 — 1150 — 875 — 575 rpm.

#1 Morse taper — 3/8"

SPRUNG-COTT MACHINERY CO., INC.

445 WATER STREET, NEW YORK 2

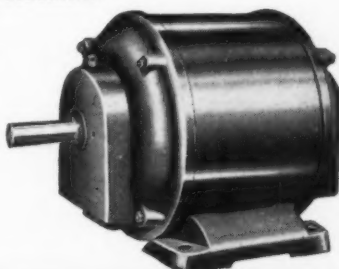
Telephone COrtlandt 7-740

Design Engineers Specify

VALLEY Ball Bearing MOTORS

Because—

- They offer more flexibility in power planning.
- They are built to meet unusual power loads and high temperatures.
- They meet all operating conditions where hazards of liquids, chips, etc., dropping into the motor are involved; as well as splash conditions.
- Being made in 1/2 to 75 h. p. sizes, they offer wide adaptability.



**VALLEY
ELECTRIC CORPORATION**

4221 Forest Park Blvd. • St. Louis 8, Missouri

**TO BE
Sure**

**SPECIFY
HODELL
FOR QUALITY CHAIN**

For 60 years Hodell has built dependability into every link of 157 varieties of welded and weldless chain. Throughout America, for every chain job, industry specifies Hodell . . .
to be sure.

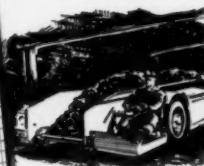
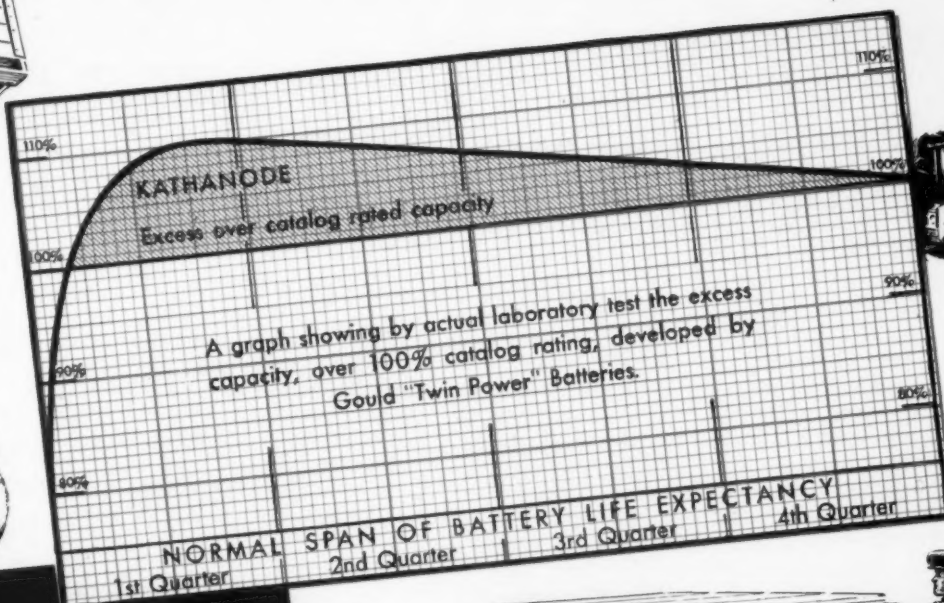
ESTABLISHED 1886

THE HODELL CHAIN CO.
CLEVELAND 3, OHIO

Advertisers IN THIS ISSUE

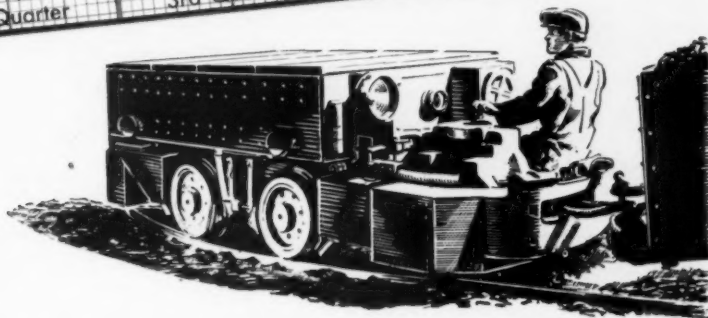
A		D		K	
Abrasive Products, Inc.	8	Darnell Corp., Ltd.	186	Keasbey & Mattison Co.	39
Accurate Spring Mfg. Co.	263	Dayton Rubber Mfg. Co., The	249	Kennametal, Inc.	340
Acme Steel Co.	69	Dick Co., A. B.	273	Kennedy Valve Mfg. Co.	154
Aetna Paper Co., Div. Howard Paper Mills, Inc.	277	DoAll Co., Inc., The	177	Kewaunee Mfg. Co.	178
Air Express Div., Railway Express Agency, Inc.	184	Dolge Co., The C. B.	244	Kex National Service	311
Air Reduction Sales Co. & Subsidiaries	56	Dougherty Lumber Co., The	168	Keystone Lumber Co.	168
Allegheny Ludlum Steel Corp.	227	Dravo Corp.	192	Kimberly-Clark Corp.	46, 286, 287
Allen Mfg. Co., The	268	Ducommun Co., M.	210	Koven & Bro., Inc., L. O.	267
Allmetal Screw Prods., Inc.	230				
Aluminum Co. of America	35	E		L	
Aluminum Industries, Inc.	52	Eaton Mfg. Co.	185	L & S Bearing Co.	160
American Cable Div.	82	Ecusta Paper Corp.	283	Ladish Company	299
American Chain Div.	321, 308	Elastic Stool Nut Corp. of Amer.	208, 209	Lamson & Sessions Co.	10, 11, 246
American Chain & Cable Co., Inc.	82, 170, 242, 308	Electric Storage Battery Co., The	159	Lea Mfg. Co.	228
American Optical Co.	188	Electric Wheel Co.	324	Lewis Spring & Mfg. Co.	342
American Rolling Mill Co.	254	Elwell-Parker Electric Co., The	239	Linde Air Products Co., The	74
American Screw Co.	246, 321	Emerson Electric Mfg. Co.	326	Link-Bolt Co.	23
Amos Coal Co., C. L.	164	Esleek Mfg. Co.	290	Lion Oil Co.	29
Anaconda Copper Mining Co. & Subsidiary Cos.	337, 338	Etching Company of America	318	Lord Baltimore Hotel	240
Arkwright Finishing Co.	176	F		Ludlow-Saylor Wire Co., The	315
Armstrong-Bray & Co.	268	Fafnir Bearing Co.	28	Lunkenheimer Co., The	190
Armstrong Bros. Tool Co.	262	Fairbanks, Morse & Co.	225	Lyon Metal Products, Inc.	222
Armstrong Cork Co.	161	Faraday Electric Corp.	156		
Atlantic Screw Works	246	Federal Products Corp.	253	M	
Atlas Bolt & Screw Co.	246	Federated Metals Div., American Smelting & Refining Co.	71, 78	MacRae's Blue Book	292
		Ferry Cap & Set Screw Co., The	38	MacWhyte Co.	21
B		Flexible Steel Lacing Co.	244	Magnolia Metal Co.	164
Babeock & Wilcox Tube Co.	44	Flintkote Co.	237	Magnus Chemical Co.	334
Barnes Co., Wallace	31	Ford Motor Co.	347	Marsh Co., Jas. P.	301
Barrett-Cravens Co.	265	Forest City Foundries Co., The	230	Master Products Co., The	238
Bassick Co., The	354	Fox River Paper Corp.	280	Mayers Co., L. & C.	294
Bauer & Black	329	Frasse & Co., Inc., Peter A.	37	Mechanical Rubber Products Co.	340
Beall Tool Div., Hubbard & Co.	220	Fuller Brush Co.	206	Meyerco Co.	269
Behr-Manning Corp.	166	Fulton Siphon Co., The	307	Milford Rivet & Machine Co.	246
Bemis Bro. Bag Co.	55	G		Millers Falls Co.	224
Billings & Spencer Co., The	353	Garlock Packing Co.	342	Missouri-Kansas-Texas Lines	257
Black & Decker Mfg. Co., The	173	Gast Mfg. Corp.	223	Monsanto Chemical Co.	40
Blaw Knox Co.	240	Gates Rubber Co.	243	Moore & Thompson Div., Hudson Pulp & Paper Corp.	344
Bond Foundry & Machine Co.	302	General Box Co.	194	Morse Twist Drill & Machine Co.	72, 73
Boston Woven Hose & Rubber Co.	169	General Electric Co., 15, 65, 200, 201	226	Mortell Co., J. W.	238
Bowser, Inc.	60	General Electric Co., Lamp Div.	191	N	
Bridgeport Brass Co.	211	General Industries Co.	174	National Adhesives	66
Brown & Sharpe Mfg. Co.	17	Globe Steel Tubes Co.	199	National Bearing Div., Amer. Brake Shoe Co.	197
Buffalo Bolt Co.	219	Globe Woven Belting Co.	63	National Electric Products Corp.	18
Bulldog Electric Products Co.	6	Goodyear Tire & Rubber Co., Inc.	163	National Forge & Ordnance Co.	58
Bundy Tubing Co.	247	Gould Commercial Div., National Battery Co.	351	National Lock Co.	246
Bunting Brass & Bronze Co.	49	Graham & Co., Inc., John H.	196	National Paper Box Manufacturers Asso.	175
		Graybar Electric Co., Inc.	80	National Screw & Mfg. Co.	246
C		Great Lakes Steel Corp.	143	National Vulcanized Fibre Co.	258
Carborundum Co., The	13	Great Lakes Steel Corp., Stran-Steel Div.	145	Neldich Process Co.	276
Carey Mfg. Co., Philip	74	Greene, Tweed & Co.	75	Nelco Tool Co., Inc.	172
Central Paper Co.	299	Greenfield Tap & Die Corp.	327	New Britain Machine Co.	195
Central Paper Co., Inc.	316	Griffin Co., G. W.	196	New England Screw Co.	246
Central Screw Co.	2	Grinnell Co., Inc.	223	Nicholson File Co.	229
Century Electric Co.	3	H		Norma-Hoffman Bearings Corp.	36
Champion Lamp Works, Div. of Consolidated Electric Lamp Co.	162	Hanson-Van Winkle-Munning	262	Norton Co.	152, 153, 166
Chandler Products Corp.	246	Harper Co., H. M.	246, 303	O	
Chase Bag Co.	62	Hart Mfg. Co.	332	Oakite Products, Inc.	340
Chase Brass & Copper Co., Inc.	157	Haydon Mfg. Co.	216	Ohio Rubber Co., The	319
Chicago Eye Shield Co.	160	Herbrand Corp.	305	Ohmite Mfg. Co.	255, 256
Chicago Molded Products Corp.	149	Hinde & Dauch Paper Co., The	45	Okonite Co., The	12
Chicago Rawhide Mfg. Co.	26, 314	Hodell Chain Co.	349	Old Town Ribbon & Carbon Co., Inc.	290
Chicago Screw Co., The	236	Hodgman Rubber Co.	220	Oshorn Mfg. Co., The	7
Chicago Wheel & Mfg. Co.	218	Holo-Krome Screw Corp.	260	Oxford Filing Supply Co.	290
Chisholm-Moore Hoist Corp.	25	Homestead Valve Mfg. Co.	251		
Cincinnati Time Recorder Co., The	353	Hood Rubber Co.	322	P	
Cities Service Companies	203	Hot-I Hollenden	210	Packwood Mfg. Co., G. H.	217
Clark Bros. Bolt Co.	316	Hudson Pulp & Paper Corp., Moore & Thompson Div.	344	Page Fence Asso.	242
Clark Trucktractor Co.	320	Hunt Pen Co., C. Howard	294	Parker Co., Charles, The	204
Classified Advertisements	348, 349	Hunter Pressed Steel Co.	171	Parker-Kalon Corp.	34, 246
Cleveland Cap Screw Co., The	59	I		Pawtucket Screw Co.	246
Cleveland Container Co., The	226	Illinois Coil Spring Co.	312	Penflex Sales Co., The	331
Cleveland Twist Drill Co., Mo-Max Div.	70	Imperial Brass Mfg. Co.	313	Peninsular Grinding Wheel Co.	32, 33
Colonial Broach Co.	242	Independent Pneumatic Tool Co.	151	Pheoll Mfg. Co.	246
Consolidated Electric Lamp Co., Champion Lamp Works	162	Ingersoll Steel Div., Borg-Warner Corp.	324	Philco Corp.	213
Container Corp. of America	61	Inland Steel Co.	5	Phillips Screw Manufacturers	246
Continental Diamond Fibre Co.	57	International Nickel Co.	335	Pittsburgh Piping & Equipment Co.	172
Continental Rubber Works	180	International Paper Co.	275	Pittsburgh Plate Glass Co.—Brush Div.	24
Continental Screw Co.	246	International Screw Co.	246	Plant Purchasing Directory	328
Corbin Screw Corp.	198, 246	J		Plymouth Cordage Co.	309, 310
C-O-Two Fire Equipment Co.	250	Jelliff Co., C. O.	182	Post Co., Frederick	192
Crane & Co.	289	Jenkins Bros.	4th Cover	Powell Co., William, The	261
Crane Co.	50	Johnson Steel & Wire Co., Inc.	204	Powers Regulator Co., The	220
Crescent Truck Co.	304	Jones Co., C. Walker	158	Premier Metal Etching Co.	178
Cullman Wheel Co.	168			Progressive Mfg. Co., The	344
Cunningham Co., M. E.	156			Purchasing Magazine	333
				Pure Oil Co., The	160

GOULD *"Twin Power"* PROVIDES EXTRA CAPACITY



How Far Apart are Atoms?

This is an X-Ray Diffraction Unit. In the Gould Research Laboratory it produces lines on a photographic film, used to calculate distances between atoms on the substance under test. For Gould this instrument gives information that is not obtainable in any other way. It reveals physical structures important in solving battery problems.



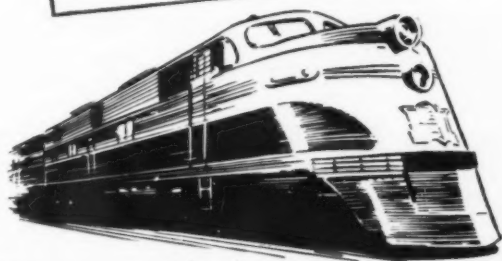
There is punch for heavy loads when electric trucks are equipped with GOULD *"Twin Power"* BATTERIES

In Gould batteries the glassklad construction retains active material in the grid framework despite vibration and hard use. Less space is required for sediment chambers. More space is available for higher capacity plates.

Today Gould batteries have "Twin Power". Negative and positive plates are balanced to insure more efficient operation. The result is an increased output which exceeds rated capacity from the beginning to the end of service life. More work is done by Gould equipped electric trucks. Material handling costs are cut.

In electric trucks and tractors, on railroad Diesel engines, in mine locomotives and shuttle cars—wherever there is a need for reserve power—Gould batteries are giving lasting service. Write for Catalog 100 on industrial truck batteries.

GOULD STORAGE BATTERY CORPORATION, Depew, N. Y.



GOULD



KATHANODE

BATTERIES

Gould Service Centers: Boston, Mass. • Chicago Heights, Ill. • Cincinnati, Ohio • Cleveland, Ohio • Depew, N. Y. • Detroit, Mich. • East Point, Ga. • Los Angeles, Cal. • New York, N. Y. • Pittsburgh, Pa. • St. Louis, Mo. • St. Paul, Minn. • San Francisco, Cal. • West Salem, Ore. • Zanesville, Ohio • Kingston, Ont., Canada

ADVERTISERS IN THIS ISSUE

R			
Railway Express Agency Inc., Air Express Div.	184	Socony-Vacuum Oil Co., Inc.	181
Rapids-Standard Co., Inc.	330	Solvay Sales Corp.	193
Rathborne, Hair & Ridgway Co.	323	Southington Hdwe. Mfg. Co.	246
Raybestos-Manhattan, Inc., Asbestos Textile Packing Div.	79	Speed Products Co., Inc.	291
Reading Screw Co.	246	Standard Pressed Steel Co.	248
Reliable Spring & Wire Forms Co., The	344	Standard Register Co.	281
Reliance Electric & Engineering Co.	241	Standard Tool Co.	53, 54
Remington Rand, Inc.	270, 288	Starrett Co., L. S., The	202
Republic Rubber Div., Lee Rubber & Tire Corp.	4	Steel Co. of Canada, Ltd.	246
Republic Steel Corp.	27	Sterling Bolt Co.	246
Reynolds & Reynolds Co., The	293	Strand & Co., N. A.	306
Rhode Island Tool Co.	210	Strathmore Paper Co.	295
Riegel Textile Corp.	341	Straubel Paper Co.	186
Rising Paper Co.	292	Strom Steel Ball Co.	334
Riverside Metal Co.	22	Stronghold Screw Products, Inc.	246
Roberts Numbering Machine Co.	232	Stuart Oil Co., Ltd., D. A.	312
Roebbling's Sons Co., John A.	9	Sturtevant Mill Co.	64
Rollway Bearing Co.	325	Sugar Beet Products Co., Chemical By-Prod. Div.	51
Russell, Burdall & Ward Bolt & Nut Co.	165, 246	Sun Oil Co.	297
Rust-Oleum Corp.	235	Superior Foundry, Inc.	266
Ryerson & Son Inc., Joseph T.	86	Superior Steel Corp.	187
		Swan Engineering Co., Inc.	164
S		T	
Safety & Maintenance Co., Inc.	247	Taylor Co., Halsey W., The	306
Schrader's Son, A.	317	Texas Co., The	2nd Cover
Seovill Mfg. Co.	246, 317	Thom McAn Safety Shoes	231
Shakeproof, Inc.	246	Thompson & Son Co., Henry G., The	336
Sheldon Machine Co.	268	Threadwell Tap & Die Co.	84
Shenango-Penn Mold Co.	179	Tide Water Associated Oil Co.	41
Sheppard Co., C. E., The	282	Timken Roller Bearing Co.	155
Sheppard Envelope Co.	279	Tinnerman Products, Inc.	215
Signode Steel Strapping Co.	352	Triplex Screw Co., The	252
Simonds Abrasive Co.	42	Trojan Products Div., Diversy Corp.	322
Simonds Gear & Mfg. Co.	322	Trumbull Electric Mfg. Co., The	259
Simonds Saw & Steel Co.	183	Turco Products, Inc.	343
Snap-on Tools Corp.	167	U	
		Uarco, Inc.	278
		V	
		Udyllite Corp., The	234
		Underwood Corp.	285
		Union Wholesale Lumber Co.	168
		U. S. Rubber Co.	264, 345
		U. S. Steel Supply Co.	43
		U. S. Steel Wire Spring Co., The	353
		United States Gauge Div., Amer. Machine & Metals, Inc.	183
		W	
		Valley Electric Corp.	349
		Veeder-Root, Inc.	48
		Y	
		Wagner Electric Corp.	265
		Waldes-Kohinoor, Inc.	47
		Walker-Turner Co., Inc.	30
		Walworth Co.	77
		War Assets Corp.	300
		Waters & Waters Branch, Neidich Process Co.	276
		Weirton Steel Co.	221
		Wells Mfg. Co.	258
		Western Felt Works	345
		Westinghouse Electric Corp.	3rd Cover
		Weston Co., Byron	284
		Whitlock Cordage Co.	182
		Wisconsin Motor Corp.	248
		Wolverine Bolt Co.	246
		Wrought Washer Mfg. Co.	196

DISCOVER What More Shippers Are Learning Every Day

SIGNODE PROTECTION means safe shipping plus low shipping cost!



Send for your copy of the GUIDE TO BETTER PACKING AND SHIPPING METHODS

Signode Tensional Steel Strapping is used in reinforcing practically every type of shipment . . . Wooden boxes, bales, crates, fibre or corrugated cartons and bundles. The strong, tempered flat steel bands grip the unit and hold it safe in spite of rough handling, thus avoiding damage and assuring satisfied customers.

SIGNODE STEEL STRAPPING COMPANY

2602 N. Western Ave., Chicago 47, Ill.
454 Bryant St., San Francisco 7, Calif.
1202 W. 9th St., Cleveland 13, Ohio
402 N. Broad St., Philadelphia 8, Pa.

371 Furman St., Brooklyn 2, N. Y.
52 Sleeper St., Boston 10, Mass.
442 Seaton St., Los Angeles 13, Calif.
1222 Grant Bldg., Pittsburgh 19, Pa.

Safe . . . economical protection



for every type of Shipment

3 WAY ACCURACY for your pay roll records

THE SIGNAL RINGS

THE CARD SHOWS

THE CLOCK RECORDS

THE SAME TIME

WITH A
CINCINNATI
TIME RECORDING SYSTEM

Synchronize the entire time keeping system in your business. Starting and Stopping Signals, Time Recorders, and Time Cards all operate from the same Master System—there is no possibility of error. Your payroll records are accurate to the minute.

We will be glad to show you the advantage to your business and records that a Cincinnati Time Recording System will give you.

Write Department P

THE CINCINNATI TIME RECORDER CO.
1733 CENTRAL AVE. • CINCINNATI 14, O.

Millions of
Billings Wrenches
carry this
Trade Mark



If it's a
FORGING
See Billings

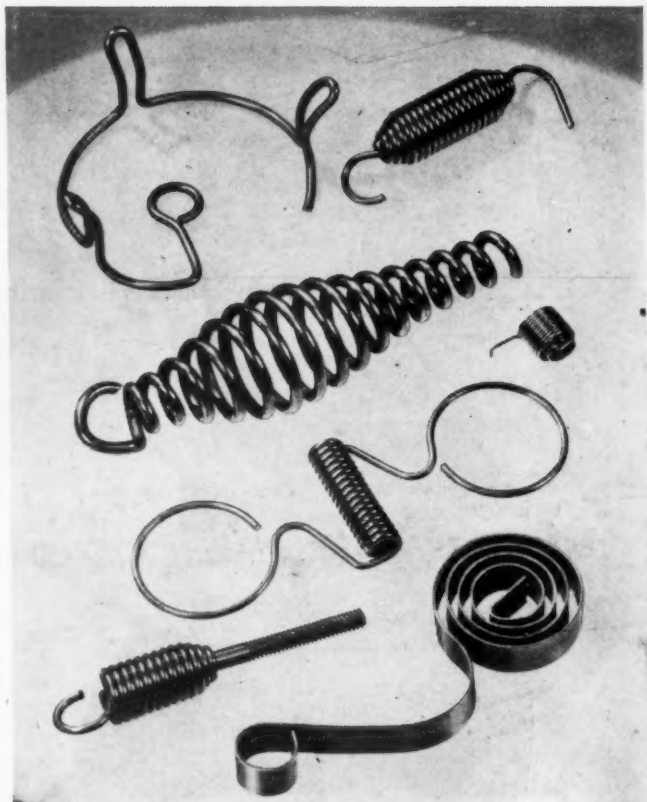
The simple, rugged forged parts are daily routine. Mixed in are the precision close tolerance jobs. They're all the same to Billings Forging Engineers—Production!

WRITE OUR FORGINGS DIV. Dept. SF-3

THE BILLINGS & SPENCER CO.
MAIN OFFICE AND PLANT
HARTFORD, CONN. U. S. A.

COIL SPRING SAYS:

"Make a Point to
Contact us for
Any Spring..
Standard or
Special..
Any Quantity!"



In buying springs, so many factors are involved that are not immediately apparent that it will save you time and trouble to bring your spring problems direct to us. Our assistance has been of great value to many customers. It can help you.

- No order too large or too small.

The **U. S. STEEL WIRE SPRING Co.**
7800 FINNEY AVE. • MICHIGAN 6318
CLEVELAND 5, O.

LOOKING FOR
Casters?

DISTRIBUTOR

***Your Local Industrial Supply
Distributor Offers You the Best
Opportunity for Quickest Delivery***

Bassick Casters are stocked by 295 distributors located in all sections of the country. These distributors are ordering casters for stock in anticipation of local requirements, and they keep in close contact with the factory. Your local Bassick Distributor can be your best expeditor for special requirements.

The Bassick Company sells through your local distributor because he is the key to prompt, economical service.

For the name of the Bassick distributor nearest you — or for a copy of our latest catalog

— write to the world's largest caster manufacturer: THE BASSICK COMPANY, Bridgeport 2, Conn. Division of Stewart-Warner Corporation.

Canadian Division: Stewart-Warner-Alemite Corporation, Ltd., Belleville, Ontario.

Bassick

***Making more kinds
of Casters...
Making Casters
do more***

Try the New FLEXARC SW-2 ELECTRODE (A KING-SIZE SW)

on the
House! ★

It's the "operator's own electrode"—the new Flexarc SW-2—developed by Westinghouse in diameters from $\frac{3}{16}$ " to $\frac{5}{16}$ " because of the widespread demand for the smaller diameter SW electrodes.

This new cost-cutting electrode gives extra footage of weld because of its flat fillet contours. The SW-2 has smooth uniform metal transfer with full side wall wash up. It gives equally good results—with a-c or d-c in all positions—on wrought iron, low or medium carbon steel, low-alloy, high strength steel, copper bearing steel and on low and medium carbon cast steel.

Both operators and supervisors are invited to check these facts on their own production—using the free samples which will be sent on request.

J-21368

Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

**FLEXARC
ELECTRODES**



Send for this new booklet. Gives complete details of SW-2 performance, time and cost reduction. Ask for B-3710.

GET FREE SAMPLES OF SW-2 ELECTRODES

Try these new electrodes on your own jobs. They're unexcelled for—

- All-position welding—single or multiple-pass fillets and butts, with a-c or d-c—
- Flat contours without undercut, yield more weld footage per pound of electrode—
- Self-freeing slag characteristics—cuts cleaning time with a resultant saving—
- Easy manipulation and striking characteristics in open or close welding spaces—makes the operator's job easier—
- Excellent root penetration with unusually good x-ray welds.

Ask for your Free Samples . . . specifying diameter used . . . on your company letterhead . . . to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

Today's Maintenance Costs Ain't Hay . . . follow this Formula and keep 'em down



WITH THIS SIMPLE ABC formula, you can avoid needless valve maintenance costs . . . thereby aid management in its drive for economy. Records of thousands of valve users prove that it works.

By choosing Jenkins Valves, and treating them with reasonable care, you'll find that they'll serve far beyond the normal life expectancy of valves, even under hard and constant usage. What's more, you can call on Jenkins Valve Specialists for any help you need in selection and placement of valves for greatest efficiency.

Follow the Jenkins ABC Formula — for *lowest cost valves in the long run.*

Jenkins Bros., 80 White Street, New York 13; Bridgeport, Conn.;
Atlanta; Boston; Philadelphia; Chicago; San Francisco.
Jenkins Bros., Ltd., Montreal.



LOOK FOR THIS



DIAMOND MARK

SINCE

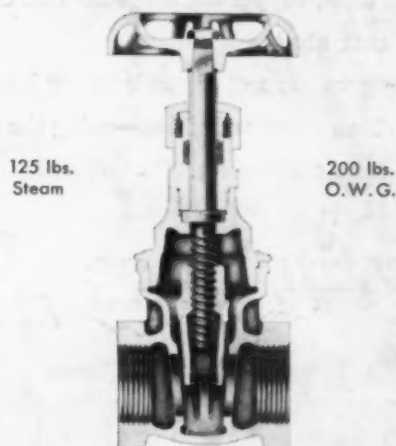
1864

JENKINS VALVES

Types, Sizes, Pressures, Metals for Every Need

Sold Through Reliable Industrial Distributors Everywhere

JENKINS FIG. 370
Solid Wedge • Inside Screw • Non-Rising Spindle
BRONZE GATE VALVE



This valve gives dependable service where full, free, unobstructed flow is required. For steam service especially, the solid wedge affords maximum resistance to pressure strains. Wedge design provides full thread engagement when valve is closed. When valve is fully opened, wedge entirely clears pathway. Extra stamina for extra service — spindle metal has tensile strength of 55,000 lbs. p.s.i.

**ONE OF OVER 600 EXTRA VALUE VALVES
MADE BY JENKINS VALVE SPECIALISTS**

